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Am J Otolaryngol 41 (2020) 102688

Contents lists available at ScienceDirect

Am J Otolaryngol

journal homepage: www.elsevier.com/locate/amjoto

Local spikes in COVID-19 cases: Recommendations for maintaining otolaryngology clinic operations

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ARTICLE INFO

Keywords:
COVID-19
SARS-CoV-2
COVID
Otolaryngology
Clinic

ABSTRACT

The Coronavirus Disease-2019 (COVID-19) pandemic has created an unprecedented economic and public health crisis in the United States. Following efforts to mitigate disease spread, with a significant decline in some regions, many states began reopening their economies. As social distancing guidelines were relaxed and businesses opened, local outbreaks of COVID-19 continue to place person on healthcare systems. Among medical specialties, otolaryngologists and their staff are among the highest at risk for becoming exposed to COVID-19. As otolaryngologists prepare to weather the storm of impending local surges in COVID-19 infections there are several practical measures that can be taken to mitigate the risk to ourselves and our staff.

1. Introduction

The first confirmed case of COVID-19 in the United States was reported in northern Washington on January 20, 2020 [1] and by March 11, 2020, the World Health Organization declared COVID-19 a pandemic [2]. COVID-19 has since created an unprecedented economic and public health crisis in the United States. As healthcare system strain became imminent, the Centers for Medicare and Medicaid Services (CMS) [3], the Surgeon General, and the American College of Surgeons (ACS) [4] recommended postponing elective procedures in efforts to mitigate the spread of disease and preserve personal protective equipment (PPE). Along these lines, the American Academy of Otolaryngology put forth recommendations for urgent and non-urgent patient care on March 20, 2020. These recommendations included delaying all elective procedures, rescheduling elective and non-urgent visits, rescheduling elective and non-urgent admissions, delaying inpatient and outpatient surgical and procedural cases, and postponing routine dental and eyecare visits [5]. Further, due to the high risk nature of the examination of the ear, nose, and throat [6], otolaryngology outpatient visits have been drastically reduced throughout the country.

Such measures have restructured otolaryngology practices with telemedicine playing a crucial role in the continuing care. CMS continues to encourage telehealth modalities, however, on April 19, 2020, CMS put forth recommendations to guide healthcare systems and facilities as they consider resuming in-person care of non-COVID-19 patients in regions with low incidence of COVID-19 disease as part of Phase I of "Opening Up America Again." [7] According to the CDC and White House, states and regions that have passed the gating criteria can proceed to phased comeback [7] (Table 1).

The ACS released guidance for the resumption of elective procedures on April 17, 2020 [4]. While aspects of these guidelines are relevant for the outpatient setting, they do not address all outpatient clinic workflow issues. Further, given that otolaryngologists and clinic staff are at unique risk due to close contact with mucous membranes of the upper respiratory tract [6], there is a need for specialty specific recommendations for the resumption of otolaryngology clinics. A recent report from a group in northern Italy (an area severely affected by COVID-19) provides guidance on reorganizing outpatient otolaryngology services in light of the current pandemic [8]. Many states began reopening businesses and healthcare centers within the context of these guidelines, however regionally there have been significant differences in implementation of masking and social distance mandates, leading to a reimplementation of restrictions. Our goal is to provide recommendations focused on outpatient otolaryngology clinics in the United States. It is important to note that these recommendations should not supplant evolving United States Centers for Disease Control

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https://doi.org/10.1016/j.amjoto.2020.102688
Received 9 August 2020
Available online 20 August 2020

Table 1
Gating criteria [7].

Symptoms	Cases	Hospitals
Downward trajectory of influenza-like illnesses (ILI) reported within a 14-day period	Downward trajectory of documented cases within a 14-day period	Treat all patients without crisis care
AND	OR	AND
Downward trajectory of COVID cases reported within a 14-day period	Downward trajectory of positive tests as a percent of total tests within a 14-day period (flat or increasing volume of tests)	Robust testing program in place for at-risk healthcare workers, including emerging antibody testing

Table 2
Pre-visit patient screening.

General recommendations	
• Primarily utilize telehealth visits for initial consultations • *Notable exceptions*: suspicion for malignancy, foreign bodies, abscesses, epistaxis or cerumen impaction refractory to initial medical management • Ensure all outside medical records, imaging, pathology reports are available prior to visit	
Screen for high-risk patients or friends/family members • 65 years and older • Live in nursing home/long term care facility • Chronic heart, kidney, lung disease including asthma • Immunocompromised • Severe obesity • Diabetes mellitus	Recommendations • Patients at high risk should undergo telehealth evaluation if at all possible • Friends/family members at high risk should be asked to remain outside of the clinic
Screen patients for COVID-19 symptoms *Have you recently been tested for COVID-19?* *If not, have you had contact with someone with COVID-19 within the last 2 weeks?* *Do you live or work in a place where COVID-19 is actively spreading?* *Have you recently had any of the following symptoms?* • Fever • Shortness of breath, cough, blood in sputum • Nasal congestion, runny nose • Signs of low blood pressure • Sore throat • Muscle aches, body aches, headaches • Fatigue or malaise • Nausea, vomiting or diarrhea	Recommendations • Patients with confirmed COVID-19 or high suspicion for COVID-19 should avoid coming to the clinic if at all possible • If they require in-person visit, see recommendations in the following sections
Screen patients who will require aerosolization procedures • FFL • Nasal endoscopy • Nasal cauterization • PTA/odontogenic abscess I&D • Mucosal biopsy (OC, OP, NC, NP)	Recommendations • Strongly consider pre-visit COVID-19 testing

*FFL = flexible fiberoptic laryngoscopy, PTA = peritonsillar abscess, I&D = incision and drainage, OC = oral cavity, OP = oropharynx, NC = nasal cavity, NP = nasopharynx.

(CDC), and relevant federal, state and local public health guidelines.

2. General recommendations

The increased emphasis placed on telemedicine presents specific challenges for the otolaryngologist, given the wide scope of practice that entails both procedural and medical management of ailments. While some chief complaints require in-person office evaluation, many patient consultations can be conducted and reimbursed via telemedicine [9,10]. Increasingly, however, otolaryngology practices have been opening for in person office visits in accordance with published guidelines. Although universal COVID-19 screening has not been widely adopted, strategies such as universal masking and staggered approach to appointments to reduce waiting room occupancy have been effective. Accordingly, it is imperative that patients are triaged by administrative or nursing staff prior to clinic arrival. Further, it is important to know if the patient or an accompanying family member is at high risk for severe COVID-19 illness, as defined by the CDC [11]. When the decision is made for an in-person evaluation, patients should be screened for COVID-19 symptoms prior to their arrival [12]. In addition, patients who may require office-based procedures should be screened and should be strongly considered to undergo COVID-19 testing prior to arrival, if possible (Table 2).

2.1. Measures taken during the visit

In-person examinations pose obvious risks of SARS-CoV2 (novel coronavirus) transmission among patients, family and friends of patients, and clinical staff. As such, implementing strategies to mitigate this transmission is critically important. Overall, we have implemented strategic reorganization of patient flow (scheduling, waiting room interactions, check-in process, and physical barrier placement) and adaptations within the examination room to protect both patients and clinical staff alike (Table 2). Considerations for endoscopic examination

Table 3
During the visit.

General recommendations
- Reduce total number of persons in the clinic space
- Ensure social distancing measures are observed
- Reduce fomites

Patient flow recommendations (in-person visits)
Scheduling (*per each time block*)

- One new patient
- One follow-up patient
- Allow 15 min between appointments

Waiting room

- Encourage patients to come alone; friends/family members to wait in cars or outside clinic space, if able
- Ensure adequate social distancing (chairs 6 ft apart, adjust total allowed capacity based on size of waiting room)
- Clean chairs and other surfaces after human contact

Check-in process

- Eliminate paper check-in and associated fomites
- Transition to fully digital process, if able
- Consider contactless payments (Android Pay[a], Apple Pay[b], Microsoft Wallet[c], Samsung Pay[d], bank-specific applications, etc.)

Physical barriers

- All persons should be required to wear a mask
- Consider installing plexiglass shields for front office staff

Examination room recommendations (in-person visits)
- Reduce number of persons in the room
- Physician, patient, nurse/MA as necessary
- Family members/friends should not accompany patient inside the room
- Consider using patient's phone, office computer, personal phone (with identity-concealing application) for audio or video discussion with family members/friends
- Options: Apple FaceTime[b], BlueJeans[e], Zoom[f], Doximity Dialer[g], Cisco Webex[h]
- Utilize negative pressure procedures rooms if available

*MA = medical assistant.
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[b] Apple Inc., Cupertino, California, U.S.A.
[c] Microsoft Corporation, Redmond, Washington, U.S.A.
[d] Samsung Group, Seoul, South Korea.
[e] BlueJeans, Verizon Enterprise Solutions LLC, Mountainview, California, U.S.A.
[f] Zoom Video Communications, San Jose, California, U.S.A.
[g] Doximity Inc., San Francisco, California, U.S.A.
[h] Cisco Webex, Milpitas, California, U.S.A.

Table 4
Recommendations for Endoscopy.

- FFL[a] should be performed only for a clear indication [20]
- Alternatively, lower threshold for imaging
- If available, utilize video screens during flexible endoscopy rather than eye-piece to maintain distance from patient
- If possible, test patient for SARS-CoV-2 within 48 h prior to procedure; consider having patient return for endoscopy
- Do not use anesthetic or decongestant sprays; instead, use topical anesthesia via soaked Endoscopic video should be displayed on a screen to maintain distance between HCP and patient
- Consider disposable endoscopes or always use a protective cover when removing an endoscope from examination room after use for sterilization
- After procedure for patient without negative SARS-CoV-2 RNA test, keep room empty for 2 h

[a] Flexible Fiberoptic Laryngoscopy.

Table 5
Post-visit decontamination strategies.

Patient visit without aerosol generating procedure

- Room should be sanitized using disinfectants approved for use against SARS-CoV-2 [37]
- UV-C light should be utilized for 15 min following a standard visit [15,16,40]

Patient visit with aerosol generating procedure

- Delay entering examination room to disinfect and remove soiled instruments
- Application of UV-C light for 2 h following a procedure
- All surfaces, including examination chair, computer, countertops, and door handles, should be disinfected
- Instrument sterilization after each procedure (Soak in Cidex for 30 min; autoclave; dry and UV light treatment after autoclave)

Table 6
Safety recommendations for staff.

Reduce personnel in clinic

- Continue telemedicine visits for interdisciplinary staff when possible
  - o Voice and swallow therapy
  - o Audiology consults
- Physical barrier at front desk
- Maintaining 6-feet distance from other staff members or patients in examination rooms as possible [41,42]

Use of PPE by staff

- Surgical mask at all times
- N95 when assisting during a non-high risk aerosol generating procedure
- Fitted N95, N—P 99, N—P 100, elastomeric respirators with filters (N—P 99–100 level), Powered Air Purifying Respirators (PAPR) or Controlled Air-Purifying Respirator (CAPR) for high risk aerosol generating procedure or COVID-positive patient [24]
- Fitted goggles for eye protection during high risk aerosol generating procedure

Sanitation protocols

- Meticulous hand washing for 30 s between patient encounters and throughout day
- Sanitizing workspaces (pens, doorknobs, waiting room chairs) and examination spaces (countertops, knobs, chairs) in between patient encounters

Table 7
Hygiene recommendations for personnel entering/exiting workplace.

Before work

- Staff and Otolaryngologists should consider wearing a clean set of scrubs every day
- White coat use discouraged unless capability to wash every day exists
- Jewelry, ties, watches, and other accessories should be left at home unless absolutely necessary [33]
- Contact wearers should consider wearing glasses in order to minimize potential for cleaning contacts
- Stock cart with disinfecting wipes, hand sanitizer
- If utilizing mass transit, having hand sanitizer on hand as well as extra disposable gloves
- Hair should be neatly tied or fixed to prevent contamination

Returning home

- Clean shoes (clogs) with disinfecting wipe.
- Placing work clothes and shoes into a dedicated soiled clothing bag; Cloth bags can be considered and washed
- Change out of clothes upon arriving home in a designated location (e.g. laundry room, garage, patio) and store these clothes in a bag
- Wash dirty clothes using regular laundry detergent
- Immediate shower upon changing out of work attire
- Disinfect surfaces regularly (electronics, countertops, door handles, light switches, desks, toilets, faucets) using EPA-registered household cleaners [39]

are also presented in Table 3, should clear indications such as difficult airway management or malignancy be present. Adjunct use of transcutaneous laryngeal ultrasound may be a rapid noninvasive method well suited for evaluation of vocal fold motion [13], however recent publications do not suggest an increased risk of aerosolization with routine flexible laryngoscopy beyond normal baseline risks associated with patient sneezing or coughing [14]. However, performing a flexible fiberoptic laryngoscopic examination does potentially increase the risk of coughing or sneezing, and often requires phonation for a complete examination, all which are aerosol-generating [14]. Following the

Table 8
Precautions for PPE use.

Droplet precaution
Surgical mask, gloves, disposable gown, protective eyewear

- For all non-procedure, asymptomatic patient encounters
- Physical examination not involving mucosal surfaces or ear canal

Airborne precaution
N95 or higher (preferable, if available), shoe covering, disposable gown, goggles or protective eyewear

- Procedures involving mucosal surfaces or close contact:
  - o biopsy, cerumen removal, mastoid debridement
  - o nasal cavity, nasopharynx, oral cavity, oropharynx, hypopharynx, larynx
- If patient is symptomatic or with confirmed or suspected COVID-19 diagnosis, or flu-like symptoms

Face shield should be used with all Immunocompromised patients (active chemotherapy, radiotherapy, or immunotherapy; < 1 yr after solid organ transplant, or receiving chronic immunosuppression, or pregnant).

Table 9
Healthcare personnel screening recommendations.

Exclude from work for 14 days after last exposure if:

- Up to 48 h before a patient's COVID-19 symptom onset, if patient is wearing facemask/cloth face covering and HCP has no face mask or respirator [38]
- Up to 48 h before a patient's COVID-19 symptom onset, if patient is **not** wearing facemask/cloth face covering and HCP has **either** no eye protection or no face mask or respirator [38]
- If HCP develops fever or symptoms of COVID-19, should immediately self-isolate and separate from others
- HCP with community- or travel-associated exposure should alert the physician and reach a shared decision regarding restriction from work

Return to work

- **Symptomatic** suspected or confirmed COVID-19 [43]
  - o Symptom-based strategy
    - ▪ At least 3 days after resolution of fever and improvement of respiratory symptoms, and
    - ▪ At least 10 days after onset of first symptoms
  - o Test-based strategy
    - ▪ Resolution of fever without medication, and
    - ▪ Improvement of respiratory symptoms, and
    - ▪ Two negative test results of FDA Emergency Use Authorized COVID-19 molecular assays for detection of SARS-CoV-2 RNA, collected at least 24 h apart
- **Asymptomatic** confirmed COVID-19 [44]
  - o Time-based strategy
    - ▪ At least 10 days after first positive FDA Emergency Use Authorized COVID-19 molecular assay for detection of SARS-CoV-2 RNA
    - ▪ No symptom development
  - o Test-based strategy
    - ▪ Two negative test results of FDA Emergency Use Authorized COVID-19 molecular assays for detection of SARS-CoV-2 RNA, collected at least 24 h apart
    - ▪ No symptom development

Table 10
Quality and safety recommendations.

- Outline a set of policies that are appropriate for outpatient clinic
- Clarify and interpret new policies, as well as modify existing policies to reflect recommendations
- Communicate updated recommendations and plans in a timely manner
- Consider standardized templates for efficiency [45]
- Develop multi-disciplinary quality and safety committee involving:
- Nurse manager
- Office manager
- Medical Assistant
- Business/Supply manager
- Instrument processing technician
- Meetings should occur at least once a day

patient visit, rooms should be decontaminated (Table 4) according to either the patient's COVID status or clinical suspicion, as well as whether an aerosol-generating procedure was performed [14–20]. These recommendations should be used in conjunction with current guidelines for patient care and public safety [21–24] and are adaptable to meet the needs of specific practice environments.

3. Considerations for protection of the otolaryngologist and staff

As operations in the otolaryngology clinic have resumed, considerations for workforce availability, staffing ratios, sanitation protocols, and HCW screening must be maintained to ensure a safe working environment for both patients and staff. Strategies can be focused on maintaining the lowest staffing ratio available in order to efficiently check-in patients, triage calls, escort patients and record vitals, and assist in any planned procedures (Table 2). This may require day-to-day alterations in ratios. Moreover, staff should be advised to follow CDC recommendations for social distancing from other staff and patients in order to avoid “close contact.” Large viral droplets (greater than 5 μm) can remain in the air for only a short time and travel distances generally less than 1 m [25–27]. Virus-laden small (less than 5 μm) aerosolized droplets can remain in the air and travel distances greater than 1 m [28]. This is defined as greater than 6 ft distance between oneself and a COVID-19 case. As the highest degree of viral shedding from the nasopharynx is thought to occur up to 48–72 h prior to symptom onset [29], patients should be assumed to be asymptomatic carriers until testing capacity is sufficient to perform point-of-care testing prior to the patient visit should use of laryngoscopy be needed. Many institutions have moved to testing patients between 24 and 96 h prior to elective surgery or laryngoscopy [30,31]. Temperature screening of all patients and staff through a non-contact temperature check at the entrance should be instituted, however should not be relied upon to rule out COVID-19. Use of barrier glass, such as glass or plastic windows at the front desk is recommended for protection against droplet infection. [32,33] As state re-opening and restrictions evolve, it will become increasingly important for the otolaryngologist and team to monitor the COVID-19 incidence rate in their area, and develop a threshold for re-entering the mitigation phase when a resurge is evident [4]. Self-protective measures for both the otolaryngologist and staff begins with preparation prior to the work-day, continues with prudent use of PPE in the clinic, and ends with a practical hygiene routine upon returning home (Table 5, 6 and 7) [34].

3.1. PPE precautions

With a growing body of evidence, the transmission of SARS-CoV-2 is becoming better understood. Face masks or face coverings should be worn by everyone in an otolaryngology clinic and clinicians in direct contact with patients should wear full droplet precaution PPE. Airborne precaution should be donned for aerosol-generating procedures (Table 8). While N95 respirators are the minimum level of respiratory protection recommended for airborne precautions, higher level respirators (N99, N100, elastomeric respirator, PAPR, CAPR) may offer greater protection from virus transmission [19,35].

In practice, however, use of an N 95 mask with a face shield has become standard for all procedures where there is a potential exposure to respiratory droplets and the provider is in close proximity to the patient. In our experience, patients who were asymptomatic at the time of visit but developed symptoms and a positive COVID test within days of the office procedure, did not transmit the virus to staff or other patients using these precautions.

3.2. Healthcare provider screening

Facilities should consider monitoring healthcare provider (HCP) temperatures and assessing symptoms [36] prior to entering the

workplace. This is being done routinely by hospitals and office facilities. Alternatively, HCPs may report self-monitored temperatures and symptoms to occupational health. HCPs should self-monitor temperature twice daily and be alert for symptoms of COVID-19, regardless of exposure risk in otolaryngology clinics [37,38]. Under certain circumstances of close contact exposure, it may be necessary to restrict a HCP from coming into work (Table 6) [38]. Bear in mind that brief interactions with suspected COVID-19 patients while maintaining distance, such as a brief conversation, checking in, or checking out a patient, are considered low risk and should not restrict a HCP from work. In the event of a staff member becoming ill, a protocol for returning to work is summarized in Table 9.

4. Ensuring safety and quality in otolaryngology

The rapidly evolving COVID-19 pandemic has led to an unprecedented dispersal of information. This will continue as various countries and states began react to local trends in COVID-19 infections. Further, as various states enter phases of reopening, we can expect the CDC, local governments and the ACS to continue to provide guidance. We propose structuring a Safety and Operations Committee in the outpatient setting which can disseminate clear and consistent information to otolaryngology providers and staff (see Table 10).

5. Conclusion

Maintaining outpatient otolaryngology clinic operations will require close follow-up and monitoring of local/regional trends in infections, as we enter a “new normal” in the age of COVID-19. Local and regional surgeries and infection may overwhelm healthcare capabilities, prompting shortages in PPE. Local restrictions on travel and business opening should be expected as cases potentially surgery and subside. Consideration and incorporation of practical guidelines prior to maintaining outpatient clinics may reduce unnecessary exposures for both the otolaryngologist and their staff, while continuing to care for our patients.

Funding

None.

Declaration of competing interest

None.

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