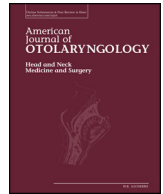




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Our experiences of resuming services in ENT departments in Wuhan, once a COVID-19 epicenter

Kai Xu, Xiang Lu*, Zheng Liu*

Department of Otolaryngology Head and Neck Surgery, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430030, China

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ABSTRACT

The pandemic of coronavirus disease 2019 (COVID-19) showed a significant impact on routine daily services in departments of otorhinolaryngology head and neck surgery. The city of Wuhan, as the first reported epicenter in the world, resumed medical service since April 8, 2020. As the biggest ENT services provider in Wuhan, we share out institution's triage and screening system in the resuming period.

Since Jan 23, 2020, millions of people in Wuhan had been quarantined due to COVID-19 epidemic. A significant portion of health care workers (HCWs) had been recruited and were involved in treating patients with COVID-19, leading to the lack of HCWs and cancellation of all non-emergency services in ENT departments during this period.

Since late March 2020, only sporadic COVID-19 symptomatic cases have been diagnosed daily in Wuhan [1]. On April 8, 2020, Wuhan reopened. However, hundreds of COVID-19 asymptomatic cases emerged since then [2], and their infectious potential had not been well defined [3]. This is extremely challenging for resuming daily services in the department of otorhinolaryngology-head and neck surgery, which is associated with many aerosol-generating procedures and is susceptible to viral dissemination [4].

Considering that many HCWs were involved in treating patients with COVID-19, all employees in our hospital were screened for COVID-19 before resumption. Only employees who did not exhibit SARS-CoV-2 transmission potential were allowed to serve patients. In our hospital, among nearly 10,000 screened employees, 8 were positive for SARS-CoV-2 RNA, 39 were positive for serum SARS-CoV-2 IgM, and 310 were positive for serum SARS-CoV-2 IgG.

Our outpatient department has resumed following a three-layer triage strategy (Fig. 1). The first-layer triage begins at the hospital entrance where thermo-scanners were set up to determine those who will be assigned to the fever clinic. After registration, all patients will then be rechecked and their information will be taken at the triage service desk, where the second-layer triage is located. Those patients who have COVID-19 related symptoms, such as fever, cough or fatigue, will then be transferred to the fever clinic. Our patients will undergo the third-layer triage in our ENT outpatient department. The patients who need

hospitalization or endoscopic examination, such as laryngoscopy or nasal endoscopy, will then have to register at the ENT service center. Only patients with recent COVID-free chest CT scans, as well as negative results of SARS-CoV-2 RNA, and serum SARS-CoV-2 IgM were allowed on the waiting list for further hospitalization or endoscopic examination, while suspected cases are transferred to the fever clinic.

All non-emergency patients were required to have their masks on during their service unless their SARS-CoV-2 screenings have finished. For HCWs in the endoscopic examination room, an N95 mask and face shield will be provided [5]. For emergency patients without SARS-CoV-2 testing results, such as those with rapidly life-threatening dyspnea, massive persistent epistaxis, and pediatric foreign body in the respiratory tract, our HCWs will conduct treatment wearing powered air-purifying respirators.

Though the daily services in our outpatient department have resumed, the patient visits are still at a low volume. We provided services to 60 patients per day on April 8, increasing to 300 per day on May 28, about 37% of last year's daily capacity (an average of 800 cases per day). As one of the biggest medical centers in China, more than 60% of our department's 300,000 outpatient visits were from areas outside of Wuhan in 2019. However, the fear of becoming infected by asymptomatic COVID-19 carriers in Wuhan, as well as the increased cost of COVID-19 testing and possible further quarantine, lead to the drop-in percentage (less than 10% since resumption) of patients coming from outside Wuhan. The disease spectrum for these patients from areas outside of Wuhan has also changed; most of them are advanced malignant diseases that already have a confirmed diagnosis and are transferred from local hospitals.

Playing an important role during the outbreak, 40 out of 200 beds in

* Corresponding authors at: Department of Otolaryngology Head and Neck Surgery, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, 1095 Jiefang Avenue, Wuhan 430030, China.

E-mail addresses: luxiangent@hotmail.com (X. Lu), zhengliuent1@hotmail.com (Z. Liu).

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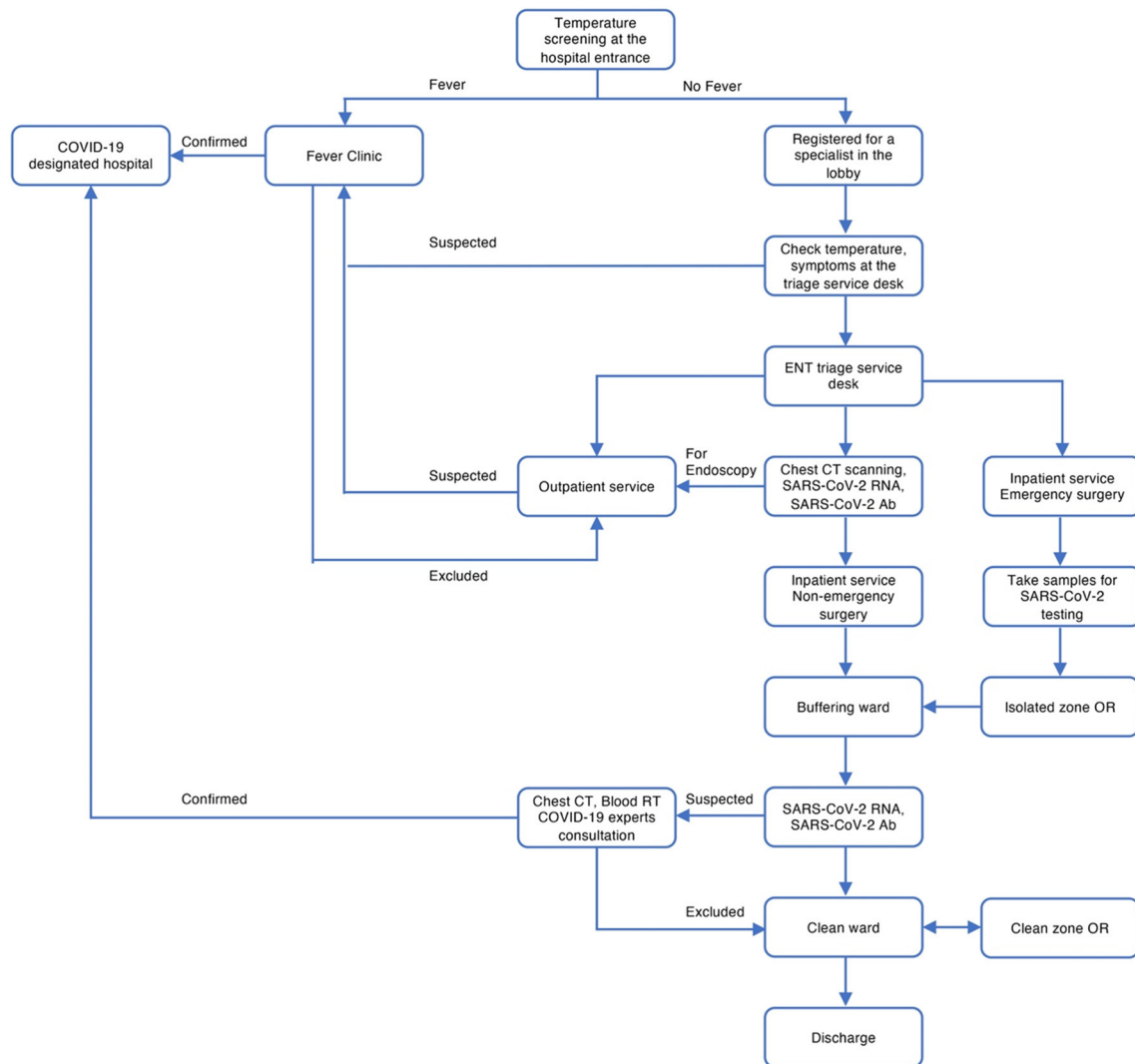


Fig. 1. The triage and screening system for resuming daily services in the department of otorhinolaryngology-head and neck surgery.

our department's ordinary wards have been reconstructed and designated to treat severe COVID-19 patients. When we resumed our inpatient department, the reallocated 40-bed ward was used as a buffering ward for hospitalized patients. As previously mentioned, a round of COVID-19 screening is conducted for all non-emergency hospitalized patients. Considering one round of SARS-CoV-2 RNA testing brings a significant rate of false-negatives [6], another round of SARS-CoV-2 testing is administered over 24 h after their admission to the buffering ward (Fig. 1). The patients who showed negative results for both rounds of screenings were allowed to move to the clean wards where wearing a surgical mask is enough for both the patients and HCWs.

Operation rooms (ORs) are classified into clean zone ORs and isolated zone ORs. The patients sent from clean wards will then be operated on in the clean zone ORs, while the patients who need emergency surgery without receiving their SARS-CoV-2 screening results will be operated on in the isolated zone ORs. After the operation, patients who were operated on in either clean zone ORs or isolated zone ORs will be sent back to clean wards and buffering wards, respectively. In clean zone ORs, HCWs are only required to wear the basic surgical mask. However, in isolated zone ORs, an N95 mask, face shield or PAPR were warranted for HCWs [5]. We performed 29 surgeries in April and 119 surgeries in May, but these are still much lower than last year's capacity (800 surgeries per month).

In May 2020, the Wuhan government had conducted a citywide

screening for basically all residents. 300 out of nearly 10 million residents (0.003%) showed positive results for SARS-CoV-2 nucleic acid and were defined as asymptomatic COVID carriers [1], which is much lower than results from an investigation one month ago (0.057%) [7], indicating the good control of the COVID-19 epidemic in Wuhan. This encouraging result seems bring confidence to the public, which is associated with the surge of daily services in our department in June (about 70% of last year's capacity).

1. Conclusion

Since the resumption of our department, no COVID-19 nosocomial infection has been reported due to the strict execution of triage and screening. Our experiences might be able to provide valuable suggestions to our medical community during the resuming period.

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CRediT authorship contribution statement

Kai Xu: Writing the manuscript.
Xiang Lu: Designing and editing the manuscript.

Zheng Liu: Provide the data, editing the manuscript, approval of submission.

Declaration of competing interest

None.

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