

# COVID-19 Management in Pediatric Emergency Medicine

## Çocuk Acil Servisinde COVID-19 Yönetimi

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### ABSTRACT

Emergency departments are on the front line in the management of Covid-19 cases. Emergency department personal need to be equipped with appropriate personal protective equipment and trained in its use. Pre-triage screening is necessary to prevent nosocomial infection. The clinical presentation of Covid-19 ranges from non-specific symptoms to acute respiratory distress syndrome. Personal in triage must maintain a high index of suspicion when evaluating all patients, but especially those with fever, cough, dyspnea, or signs of a respiratory illness. Healthcare workers who perform aerosol processing should be carefully. Even though morbidity and mortality are rare in pediatric population, clinicians should be aware that they may infect more vulnerable populations and social distance should be encouraged.

**Key Words:** Children, COVID-19, Pediatric Emergency Department

### ÖZ

Acil servisler Covid-19 vakalarının yönetiminde ön saflarda yer almaktadır. Acil servis personeli kişisel koruyucu ekipmanlarla donatılmalı ve kullanımı konusunda eğitilmelidir. Hastane enfeksiyonlarının önlenmesi için ön-triaj taramaları gereklidir. Covid-19'un klinik görünümü spesifik olmayan semptomlardan akut solunum sıkıntısı sendromuna kadar değişebilmektedir. Triaj personeli, özellikle ateş, öksürük, nefes darlığı veya solunum yolu hastalığı bulguları olmak üzere tüm hastaları değerlendirirken yüksek şüphe duymalıdır. Aerosol oluşturan işlemler yapan sağlık çalışanları dikkatli olmalıdır. Çocuk popülasyonda morbidite ve mortalite nadir olmakla birlikte, klinisyenler daha savunmasız, hassas popülasyonlara bulaştırabileceklerinin farkında olmalı ve sosyal mesafe teşvik edilmelidir.

**Anahtar Kelimeler:** Çocuk, COVID-19, Çocuk Acil Servis

### INTRODUCTION

The first Covid-19 case in our country was detected on March 11, 2020. Emergency workers carry a huge responsibility in this pandemic. Structural modifications such as triage place, patient waiting area, observation rooms have been arranged in the emergency departments (1). Patient's orientation (home, hospitalization, admission in intensive care unit) is a central aspect of emergency management. Symptoms of Covid-19 such as respiratory symptoms, fever, and cough are like other viral upper respiratory illness. Therefore, case identification should be made for Covid-19 patients. In our country, the patients are evaluated according to the case definition stated

in the Covid-19 guide of the T.C. Ministry of Health (2). In the presence of Covid-19, standard, droplet and contact isolation methods should be applied. Hand hygiene, respiratory hygiene and contact prevention measures are the base methods.

### RED FLAG!

**Protection of emergency department staff from nosocomial infection is critically important!**

### Triage

Triage is the process of classifying patients according to their emergency status. In pandemic period to improve infection control, a specific early triage area is required, which includes



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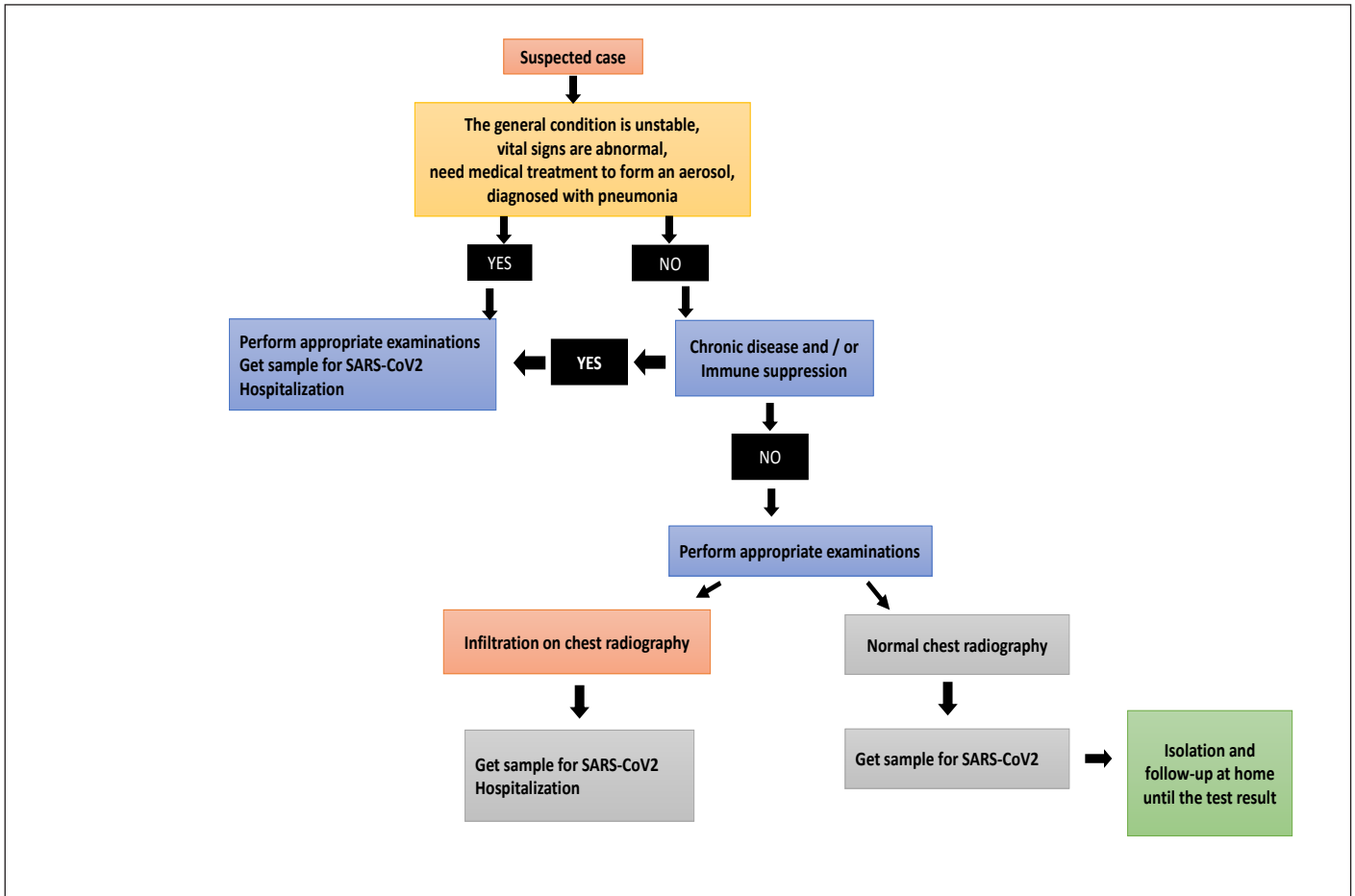
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**Figure1:** Pediatric Covid-19 case management algorithm.

early recognition of the infection status, immediate separation of suspicious cases and appropriate infection prevention measures (3). If possible, this new pre-triage screening should be done before entering the emergency department to prevent nosocomial transmission (4). If there is not enough space, a tent may be built to increase capacity. In this area, a child with a fever, cough, and respiratory distress is recommended to wear a surgical mask. Healthcare workers must be wearing full personal protective equipment (gown, surgical mask, goggles / face shield, gloves) in this area (1).

The primary step of triage in pediatric patients; evaluation of the appearance, respiration, and circulation in a short time by using visual and auditory cues with “Pediatric Assessment Triangle”. Today, there is no ideal triage system with high reliability and selectivity in children. Evaluation of vital signs during triage is practically not used frequently. According to our knowledge temperature measurement is included in The Emergency Severity Index. Fever is the most important finding in Covid-19. Therefore, at least fever must be measured in triage area.

**Infection protection in emergency room**

In the emergency room, normally everyone should use a mask. However, a surgical mask is not enough for aerosol processing

such as aspiration, tracheal intubation, tracheostomy, noninvasive ventilation, chest compression and bag-mask ventilation. Healthcare workers who perform such procedures should use masks (N95, FFP2 etc.) that are fully exposed to the face (5).

The administration of cardiopulmonary resuscitation involves performing numerous aerosol procedures and require providers to work near one another and the patient. Emergency airway and tracheal intubation of a child diagnosed with Covid-19 is a high-risk procedure for infection transmission (6). Therefore, operations should be done in a negative pressure room if possible. Patients should be intubated according to the rapid sequential intubation protocol. Intubation should be done by the most experienced person, with one attempt and, if possible, with video laryngoscope in intubation box. Cuffed endotracheal tube should be preferred. Clamp can be attached to the tube before the procedure. If it is necessary to make a bag-mask ventilation during intubation, it should be using with filter and tight seal (5, 6). If high flow nasal cannula treatment is going to be done, the mask is put on the patient after the nasal cannula is placed. Inhaler drugs should be given by aero-chamber or metered dose inhaler (Puff), not by nebulizer. Simulations are highly recommended (3,7).

### Laboratory test

Respiratory samples are taken in patients who meet the Covid-19 suspected case definition. Haemogram and C-reactive protein tests are sufficient in patients whose general condition is stable and will be followed up on an outpatient. Additional examinations such as urea, creatinine, sodium, potassium, chloride, aspartate aminotransferase, alanine aminotransferase, total bilirubin, lactate dehydrogenase, creatine phosphokinase, D-dimer and troponin are taken in patients who need hospitalization (7).

### Imaging

A chest radiography is taken for each patient with suspected Covid-19. In patients whose respiratory system findings cannot be explained by chest radiography or worsening in the clinic, thorax computerized tomography is performed if necessary. Lung ultrasound findings depend on the stage and severity of the disease (8).

### Algorithm of suspected cases

Algorithms should be used for case definitions and appropriate approach. In our country, "Pediatric Covid-19 case management algorithms" are widely used in pediatric emergency departments (Figure 1) (9).

### Suggestions on discharge

The patient should be trained on respiratory hygiene. After explaining to the patient and family what to do during the follow-up at home and their criminal liability, a consent form containing this information is signed. All residents should follow their own health status and be told to apply to the health institution when any symptoms appear.

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