

## Design of an Emergency Department (ED) for COVID-19

### COVID-19 İçin Acil Servis Dizaynı

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#### Dear Editor,

In December 2019, viral pneumonia cases were reported due to novel Coronavirus SARS-CoV-2 in Wuhan, China.<sup>1</sup> Currently, the disease has become a world-wide pandemic and so far affected nearly 1.2 billion people on earth. Number of deaths related to the novel coronavirus (COVID-19) has exceeded 60.000 by April 4, 2020.<sup>2</sup>

The most important effect of COVID-19 on the health system was the overcrowding of Emergency Departments (ED). A lot of anxious patients had problems to reach healthcare professionals. The sudden increase in the demand for outpatient healthcare developed disturbance in the delivery. The frontline workers were forced to make rapid and accurate triage at the beginning, although stumbled, became more experienced each day. Criteria and guidelines both for diagnosis and treatment of suspected COVID-19 patients changed throughout the pandemic almost every day, and we followed the latest guidelines and trusted academic reports.<sup>3</sup>

The second problem was to protect the COVID-19 negative patients and healthcare staff from infected patients. It was essential to isolate the infected or suspect patients immediately at admission in isolated areas.

Adana City Training & Research Hospital is the biggest hospital in the region with 1550 bed capacity. Before the pandemic, approximately 150 ambulances, and 1500 patients presented to the ED each day. There are 28 ED physicians and 34 ED residents employed. Following the WHO announcement about the pandemic, we formed a COVID-19 hospital council and decided to re-design the ED for up-coming COVID-19. Because the ambulance entrance included a computed tomography (CT) unit, we constructed a COVID-19 admission section and relocated the ambulance entrance to the main outpatient entrance. There were three outpatient COVID-19 admission rooms and one isolated room for suspected COVID-19 patients brought by ambulances at the admission section. The nasopharyngeal swab samples were performed in the isolated and outpatient rooms. All patients received CT assessment. At the end of the section, COVID-19 suspected patients with poor medical conditions were followed at the monitorization unit, which included twelve beds. There were also three separate rooms for stable

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Helsinki Declaration rules were followed to conduct this study and no ethical approval is need for this study.

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COVID-19 suspected patients. The block above the ED was allocated for COVID-19 patients that had 60 intensive care unit (ICU) and 340 inpatient beds. One elevator closest to the section was separated for COVID-19 patients exclusively for ICU and inpatient transfers within the block.

In addition to the above, we evaluated the non-COVID-19 patients, both ambulance and ambulatory patients, at the protected area.

The re-designed outpatient admission included an ambulance entrance and two triage rooms managed by senior nurses. Following the triage, patients were examined by the ED residents in the examination area. Patient follow-up was performed in monitored or non-monitored units (Figure 1). The monitored observation unit was used for patients with poor medical conditions. Patients brought by ambulances were directly admitted to the monitored observation room and accepted by an ED physician.

We arranged a frontline triage in front of the usual entrance. All ambulatory patients initially were met here by a nurse at the first contact point and checked for temperature and the primary complaint. Patients who had a fever or COVID-19 related complaints were referred to the COVID-19 section.

We tried to separate the septic and the protected areas starting from the first day of the COVID-19 pandemic

announcement. There was no transmission between COVID-19 and non-COVID-19 areas. A patient examined at the COVID-19 area had three choices, isolation at home, ambulatory treatment, or admission in the COVID-19 block.

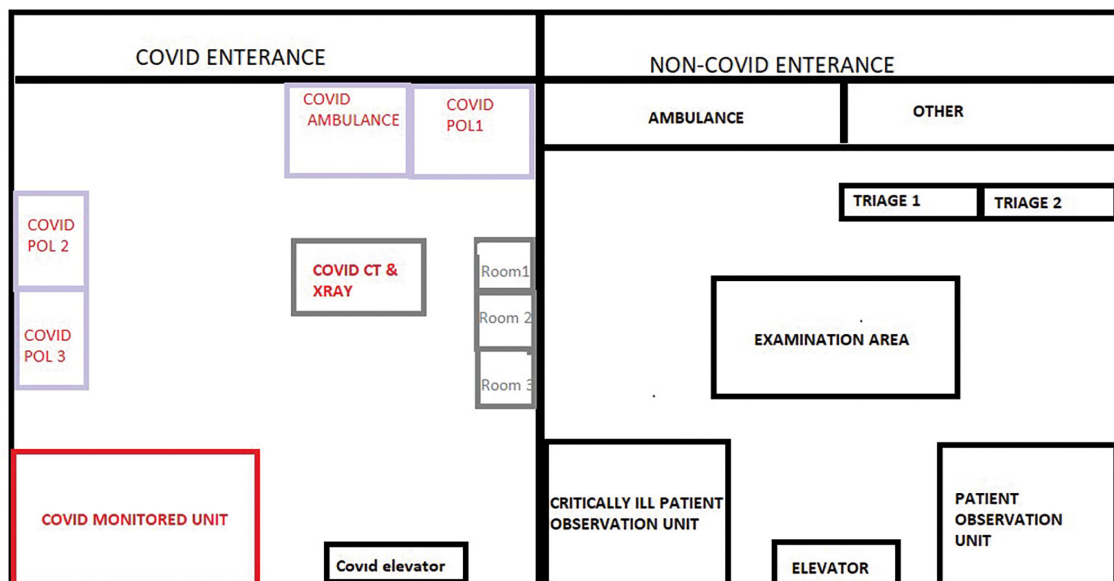
ED departments are places where the suspect patients present first. Therefore, local health authorities should have their particular plans for such unique disasters based on the hospital's condition.

All EDs have to be prepared for disasters such as pandemic infections or other mass exposures. Health authorities should have an isolation plan for probable upcoming spreading infections.

**Keywords:** Emergency department, design, COVID-19

## References

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**Figure 1.** COVID-19- plan of the ED