Comment: While this study provides helpful clinical information to assist emergency physicians in identifying potential COVID-19 patients, we must understand the limitations. Most significantly, this was only a very small portion of the overall sample size of confirmed COVID-19 patients. Additionally, be cautious in directly applying these results to patients in the United States as populations may differ.

☐ DRIVE-THROUGH SCREENING CENTER FOR COVID-19: A SAFE AND EFFICIENT SCREENING SYSTEM AGAINST MASSIVE COMMUNITY OUTBREAK.

Kwon KT, Ko JH, Shin H, et al. *J Korean Med Sci*. Published online March 16, 2020. doi: https://doi.org/10.3346/jkms.2020.35.e123.

The current Coronavirus Disease 2019 (COVID-19) pandemic has necessitated the testing of significant numbers of patients. Modeled after those used during a previous bioterrorism disaster and influenza pandemic, the authors present a descriptive report of their drive-through screening center and processes.

The authors recommend use of a large parking lot geographically removed from large population centers. Additionally, they recommend either a tent or temporary building to be used for work space and shelter from weather. They utilized a four-step process: Entrance → Registration → Examination → Specimen collection → Instructions → Exit. Patients do not leave their cars during this process. To minimize contact and preserve personal protective equipment (PPE), communication is performed either by mobile phone or electronic medical record whenever possible. Temperature is obtained with a contactless thermometer. If the physician strongly suspects COVID-19 during the examination step, the patient is transported to a designated hospital after specimen collection. Test specimens were collected with the car window opened the minimum amount necessary and car ventilation mode on internal circulation. Patients are provided with information about obtaining test results, home quarantine, and anticipatory guidance.

Healthcare workers (HCWs) who had direct contact with patients wore the following PPE: N95 respirator, eye shield/face shield/goggles, hooded coverall/gown, and inner and outer gloves. To decrease viral spread and minimize the possibility of specimen contamination, HCWs wore two gowns and two pairs of gloves for patients who required testing; the external gloves/gown were removed and hands disinfected after each patient contact. The authors reported that this process took approximately ten minutes per test, allowing them to screen 100 people per day with a staff of 4-8 HCWs. This is estimated to be 1/3 the amount of time that a typical screening process would take.

The authors recommended rotating staff every 1-2 hours if possible, and to ensure that no HCW wore an N95 respirator for longer than four consecutive hours. They also noted the need to be cognizant of relevant environmental issues, such as hot/cold weather, etc., and to adapt the working environment accordingly. Lastly, there must be adequate communication with the public regarding the limitations of the screening center to minimize the number of people who may attempt to use this resource inappropriately. They recommend considering a similar process for other uses such as medication distribution or vaccine administration.

[Travis Eastin, MD, MS
Carly Eastin, MD
University of Arkansas for Medical Sciences, Little Rock, AR]

Comment: While not a typical research manuscript we would select for Abstracts, this article describes a non-novel approach to a novel viral pandemic. The drive-through screening process has a number of advantages as outlined above, especially as centers begin seeing higher numbers of potential COVID-19 patients. It is important to consider and plan for the unintended consequences of such a program, including how HCWs will handle unexpectedly ill patients and patients arriving by alternative transportation (bike, walking, public transportation). Healthcare leaders considering a drive-through screening option should also consider the heightened emotions and fear that are present during epidemic/pandemic conditions and plan for security accordingly.

☐ EPIDEMIOLOGICAL CHARACTERISTICS OF 2143 PEDIATRIC PATIENTS WITH 2019 CORONAVIRUS DISEASE IN CHINA.

Dong Y, Mo X, Hu Y, et al. *Pediatrics*. 2020; doi: 10.1542/peds.2020-0702.

Novel coronavirus (SARS-CoV-2, which causes COVID-19) is a pandemic with many countries employing massive public health responses. Little is known about the severity of illness in the pediatric population. This study sought to identify demographic information and severity of disease in pediatric patients with COVID-19.

This was a retrospective study conducted on patients less than 18 years who were suspected or confirmed to have COVID-19 and were reported to the Chinese Centers for Disease Control (China CDC). Children were considered high risk and suspected if they had positive exposure to an endemic area or a confirmed case of COVID-19. High suspicion also included those with fever, respiratory symptoms, digestive symptoms, or fatigue, normal or low white blood cell count and increased C-reactive protein, or abnormal chest radiography, or those at lower risk for whom influenza or other respiratory illnesses were ruled out. Confirmed cases were defined as having a nasopharyngeal swab or blood sample positive via PCR or a genetic sampling of respiratory secretions or blood consistent with SARS-CoV-2. Once identified, patients were categorized by severity of disease using clinical features as well as laboratory and radiographic findings. Severity categories included asymptomatic (no symptoms but positive test), mild (mild respiratory symptoms and normal lung exam), moderate (pneumonia, fever, and cough but without hypoxemia or respiratory distress), severe (above symptoms as well as oxygen saturation less than 92% and respiratory distress), or critical disease (acute respiratory failure, acute respiratory distress syndrome, shock, or other life-threatening organ dysfunction).

There were 2143 patients included who were suspected (65.9%) or confirmed (34.1%) to have COVID-19. Median age was 7 years (IQR 2-13) and the majority (56.6%) were male. The median time from onset of symptoms to presentation

was 2 days (range 0-42). Nearly all were categorized as asymptomatic (4.4%), mild (50.9%), or moderate (38.8%) severity, leaving only 5.9% as severe or critical. Looking at breakdown by age, infants made up the highest proportion of severe or critical disease (32%) with preschool ages (1-5 years) next with 28.8%. Half (7) of the 13 critical patients were under 1 year old. No significant differences were seen between male or female patients. There was one death in the sample: a 14-year old boy.

Limitations included lack of clinical characteristics, as only data from the Chinese CDC was used rather than electronic medical records from individual patients. Additionally the majority of cases were suspected, not confirmed, and some of the children remained hospitalized at the end of the study therefore severity of disease may not be accurate. The authors concluded that COVID-19 caused infection in all ages without obvious gender differences, however younger children appeared to have higher severity of disease.

[Carly Eastin, MD
Travis Eastin, MD, MS
University of Arkansas for Medical Sciences, Little Rock, AR]

Comment: This is the largest cohort of pediatric COVID-19 patients to date. This study is based on the China CDC dataset and is limited to the variables that are reported to the CDC. We cannot assume children in the United States will be affected similarly. Overall, this dataset suggests that critical disease is rare in children with COVID-19. Emergency physicians should use caution with infants and young children, however, as they appear to be at highest risk of severe disease and may need closer observation in the emergency department or inpatient admission.

☐ RISK FACTORS ASSOCIATED WITH ACUTE RESPIRATORY DISTRESS SYNDROME AND DEATH IN PATIENTS WITH CORONAVIRUS DISEASE 2019 PNEUMONIA IN WUHAN, CHINA.

Wu C, Chen X, Cai Y, et al. *JAMA Intern Med.* doi:10.1001/jamainternmed.2020.0994.

Presenting symptoms of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) typically include fever, dyspnea, myalgia, and cough. Previous data suggest that older adults tend to have more severe illness. This study reports characteristics of and potential risk factors for patients who developed acute respiratory distress syndrome (ARDS) or who died as a result of SARS-CoV-2, the virus that causes COVID-19.

Patients aged 21 to 83 who had confirmed COVID-19 and were admitted to Jinyintan Hospital in Wuhan, China between December 25, 2019 and January 26, 2020 were included in this retrospective study. Trained clinicians abstracted data through February 13, 2020 and included epidemiological data, clinical characteristics, laboratory and radiologic findings, treatments, and outcomes. All patients had confirmed SARS-CoV-2 by throat swab sampling. Older age was defined as over 65 years old and fever was defined as a temperature higher than 37.3 degrees Celsius. The primary outcomes were development of ARDS or death among patients with ARDS.

A total of 201 patients met inclusion criteria. The median age was 51 (IQR 43-60), with 19.9% of patients aged 65 years or older. Major comorbidities included hypertension (19.4%), diabetes (10.9%), and cardiovascular disease (4.0%). The most common presenting symptoms were fever (93.5%), cough (81.1%), productive cough (41.3%), dyspnea (39.8%), or fatigue/myalgia (32.3%). Most (95%) had bilateral infiltrates on chest imaging. A separate respiratory viral panel was tested on 173 patients, but only 1 had a coinfection (Influenza A). Notable abnormal laboratory values included lymphocytopenia in 64%, elevated LDH (>150U/L) in 98%, elevated high sensitivity C-reactive protein (> 5mg/L) in 85.6%, elevated erythrocyte sedimentation rate (>15 mm/h) in 93.8%, and elevated d-dimer (>1.5ug/mL) in 23.3%, among others. Once admitted, 82% of patients required oxygen. The majority (48.8%) of patients were on nasal cannula, but many (30.3%) required noninvasive ventilation. Six patients were intubated and 1 of those was also treated with extracorporeal membrane oxygenation (ECMO). Most received antibiotics and antivirals (97.5% and 84.6%, respectively), half (52.7%) received antioxidant therapy, and systemic steroids were given to 30.8%. At the end of the study, 144 (71.6%) patients had been discharged and median length of stay was 13 days (IQR 10-16 days). A total of 44 patients (21.9%) died, all of whom had developed ARDS. The remainder of the patients remained hospitalized.

In comparing patients with (84, 41.8%) or without ARDS, those with ARDS were older (mean difference 12 years, 95% CI [8-16]), more likely to have comorbidities like hypertension or diabetes (differences 13.7%, 95% CI [1.3%-26.1%] and 13.9%, 95% CI [3.6%-24.2%], respectively) and more likely to present with dyspnea (difference 33.9%, 95% CI [19.7%-48.1%]). Other findings more likely to occur in patients with ARDS included lymphocytopenia, neutrophilia, elevated liver or renal measurements, and elevated inflammatory markers. Of those with ARDS who subsequently died, these patients were older (difference 18 years, 95% CI [13-23]), had lower temperatures (difference in proportion of high fever -31.8%, 95% CI [-56.5% to -7.1%]), and received antivirals less often (difference -40.7%, 95% CI [-58.5% to -22.9%]). Additionally, they had even greater abnormalities of liver and renal function, inflammatory markers, or coagulation indices than those with ARDS who survived. High fever (>39°C) was found to be positively associated with developing ARDS (HR 1.77, 95% CI [1.11-2.84]) but was negatively associated with death (HR 0.41, 95% CI [0.21-0.82]) as was treatment with systemic steroids (HR 0.38, 95% CI [0.20-0.72]).

The authors concluded that major risk factors for ARDS and subsequent death were older age, neutrophilia, and evidence of end-organ damage. Comorbidities and fever appeared to be associated with ARDS but not death. Limitations included selection bias, as only patients with severe COVID-19 were hospitalized therefore poor outcomes may appear inflated.

[Carly Eastin, MD
Travis Eastin, MD, MS
University of Arkansas for Medical Sciences, Little Rock, AR]

Comment: This is a large dataset in the limited nascent SARS Co-V2/COVID-19 literature, and, though it should be