This KU COVID-19 Executive Digest is authored and updated by Reem A. Mustafa and Tami Gurley-Calvez (lead authors), Daniel Parente, Mark Meyer, Joseph LeMaster, Erin Corriveau, Robert Moser, David Wild, Edward Ellerbeck, Laura Mussulman, Caitlin Smith, Christian Dodge, Jack Beal, Ian Thompson and Akinlolu Ojo.

Weekly Overview

- This digest updates every Tuesday to inform healthcare providers, hospitals leadership, policymakers and the public on issues related to the coronavirus pandemic.
- The Daily COVID-19 Digest includes information about:
  (A) Pandemic Status
  (B) Face Masks
  (C) Tracking, Anticipating Spread and Hospitalizations
  (D) Pharmacologic Treatment of COVID-19
  (E) Vaccine development
  (F) Relevant Government Actions
  (G) Other Relevant Developments
Key Highlights

- As of March 29, 2021, vaccine eligibility is open to every Kansan age 16 and older.
- Reported new cases showed continued signs of leveling-off across locations. The seven-day average of new hospital admissions increased to about 13 per day.
- New Kansas hospital admissions for the last four weeks provide some evidence that the proportion of admissions among the oldest age group (>74) is lower, but there is an increase in the 64 – 74 age group.
- There are 1,427 new cases in Kansas from March 29 to April 4, 2021. 1,371 new cases in the Kansas City metro. 286 new cases in the Wichita metro. 490 new cases from widespread reporting across Kansas locations outside of the Kansas City and Wichita metro areas. There were 41 newly reported deaths in Kansas (high reporting from Decatur 11).
- Vaccine availability varies by county. Details about vaccine distribution can be found here.

A. Pandemic Status

Pandemic Status* (as of April 4, 2021)

<table>
<thead>
<tr>
<th>Location</th>
<th>Confirmed cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>The University of Kansas Health System**</td>
<td>14,665</td>
<td>273</td>
</tr>
<tr>
<td>Johnson county</td>
<td>56,398</td>
<td>741</td>
</tr>
<tr>
<td>Sedgwick county</td>
<td>54,913</td>
<td>735</td>
</tr>
<tr>
<td>Wyandotte county</td>
<td>19,739</td>
<td>275</td>
</tr>
<tr>
<td>Shawnee county</td>
<td>16,993</td>
<td>350</td>
</tr>
<tr>
<td>Douglas county</td>
<td>8,971</td>
<td>83</td>
</tr>
<tr>
<td>Reno county</td>
<td>8,358</td>
<td>139</td>
</tr>
<tr>
<td>Butler county</td>
<td>7,402</td>
<td>84</td>
</tr>
<tr>
<td>Leavenworth county</td>
<td>7,076</td>
<td>91</td>
</tr>
<tr>
<td>Riley county</td>
<td>6,315</td>
<td>41</td>
</tr>
<tr>
<td>Saline county</td>
<td>6,099</td>
<td>135</td>
</tr>
<tr>
<td>Finney county</td>
<td>6,019</td>
<td>72</td>
</tr>
<tr>
<td>Ford county</td>
<td>5,699</td>
<td>73</td>
</tr>
<tr>
<td>KS State</td>
<td>305,498</td>
<td>4,956</td>
</tr>
<tr>
<td>MO State</td>
<td>509,848</td>
<td>9,044</td>
</tr>
<tr>
<td>USA</td>
<td>31,269,356</td>
<td>564,182</td>
</tr>
<tr>
<td>Global</td>
<td>131,813,638</td>
<td>2,860,554</td>
</tr>
</tbody>
</table>

*KS counties with > 5000 cases, **TUKHS had a total of 2,845 hospital admissions

B. Face Masks and Physical distancing

On March 8, 2021, CDC published interim public health recommendations for fully vaccinated people. It remains very important for individuals to follow their state and county’s public health departments recommendations.

On Feb 13, 2021, CDC published guidance about best practices for optimal mask protection and highlighted the importance of optimal mask fitting against the face.

CDC provides guidance on appropriate mask use: Choose masks that:

- Have two or more layers of washable, breathable fabric
- Completely cover your nose and mouth
- Fit snugly against the sides of your face and don’t have gaps
C. Tracking, Anticipating Spread and Hospitalizations

**Projected local spread:** As of April 4, 2021 the updated predictions based on a variety of widely used models for COVID-19 pandemics suggest that:

- Surveillance of cases, hospitalizations, and deaths is essential to ensure accurate understanding of the current state of the pandemic and the effect of behavioral and policy effects on disease spread.
- COVID-19 related death is the most robustly reported data point but is a lagging indicator of about 4-6 weeks after any change in behavior. Hospitalizations are also lagging indicators of disease spread.
Green lines indicate actual events and blue lines indicate calculated events based on actual data of the number of cases. Detailed notes about graphs: Data accessed April 4, 2021 at https://github.com/nytimes/covid-19-data and at https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/. The shape of the data driven prediction is determined by existing data from other states and locations that are ahead of KS in regard to the pandemic. A major limitation of using this model is that we cannot forecast the effects of events (e.g. Memorial Day) that happen concurrently across locations.
D. Pharmacologic Treatment of COVID-19

- Two major trials investigating the efficacy of IL-6 antagonists in the treatment of Covid-19 show inconsistent results – both trials used the same medication- tocilizumab. In the Randomized, Embedded, Multifactorial Adaptive Platform Trial for Community-Acquired Pneumonia (REMAP-CAP) trial, a single injection of either tocilizumab or sarilumab had an in-hospital mortality rate of 27% versus 36% for patients receiving a placebo. In the COVACTA trial, in which only tocilizumab was tested against placebo, the mortality, which was a secondary endpoint, was 19.7% versus 19.4% favoring placebo.

E. Vaccine development and distribution

- Vaccine availability varies in different counties. Details about vaccine distribution can be found [here](#). Vaccine distribution per KDHE data as of April 5 2021 are shown below

F. Relevant legislative actions

G. Other Relevant Developments

Testing

- The CDC has released guidance on the use of antigen testing, with revisions made December 5, 2020 (see Graphic, below).
Update
This is a living document. Information in this document will need to be revised and updated in the near future. We will conduct ongoing reviews of the available evidence and continuously monitor the data to determine if information require modification. Based on the rapidly evolving nature of this pandemic, information will likely need to be updated daily. This document is not intended to establish clinical practice guidelines or the standard of care. Physicians should exercise their own clinical judgement in the care of individual patients.

References
Appendix 1

SARS-CoV-2 is spread via respiratory droplets from talking, coughing, sneezing, and close contact with symptomatic individuals. Procedures like surgery, endoscopy or bronchoscopy can also lead to aerosolization and subsequent airborne transmission.\(^1\) Human-to-human transmission can occur from unknown infected persons (e.g. asymptomatic carriers or individuals with mild symptoms) as well as individuals with virus shedding during the pre-incubation period before symptoms develop.\(^2\) Data related to the spread of SARS-CoV-2 in the early phase of the pandemic have confirmed that healthcare personnel are at higher risk of infection than the general population.\(^3,4\) Several types of PPE are available and summarized below. The WHO has issued guidance on the use of PPE, following a three-pronged strategy: (1) minimize the need for PPE, (2) ensure PPE use is rational and appropriate, and (3) coordinate PPE supply chain management mechanisms.\(^5\) WHO has developed recommendations for PPE use.\(^5\) KUHS Infection Prevention has developed similar, parallel, recommendations.

Personal protective equipment (PPE) for health care personal and patients in the hospital

PPE for healthcare personnel is needed to protect both individual providers and the healthcare system itself. Inadequate PPE supply may result in shortage of healthcare personnel due to infection and/or quarantine. Infected healthcare personnel may also act as a vector for transmission to patients. Hospitals and healthcare systems, including the University of Kansas Health System, face challenges in projecting PPE requirements and availability. Projections of future health system PPE use follow projections for total number of persons under investigation (PUIs) or contracts hospitalized, and ICU patients, emphasizing the urgency of reliable projections.

Information needed to make informed projections about the required PPE during the pandemic

- Reports of number of patients hospitalized, admitted to the ICU and requiring mechanical ventilation (available from data about hospitalized patients)
- Estimates of forecast of number of patients hospitalized, admitted to the ICU and requiring mechanical ventilation with best- and worst-estimate of when the peak will occur (best and worst-case scenarios)
- Historic utilization of PPE per isolated patient (available from data about hospitalized patients)
- PPE required per COVID-19 positive/suspected patient (available from data about hospitalized patients)
- Historical hospital market share, and projections of whether this is expected to remain stable throughout the course of COVID-19 surge
- Expected number and severity of cases in a specific hospital (both total and per week)
- Period of time that social distancing/community mitigation strategies must remain in place to manage the outbreak

<table>
<thead>
<tr>
<th>Types of PPE</th>
<th>Use</th>
<th>Pros and Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical or medical masks</td>
<td>- Droplet precautions- block large particles (&gt;5 μm)</td>
<td>- Widely available - Does not require fit testing - Cannot be re-used</td>
</tr>
<tr>
<td>N95 mask respirator</td>
<td>- Filter at least 95% of aerosols (&lt;5 μm) and droplet-size (&gt;5μm) particles</td>
<td>- Requires fit testing - Can be used for an extended period and re-sterilized</td>
</tr>
</tbody>
</table>
| **powered air-purifying Respirator (PAPRs)** | - Provide high level protection from common airborne viruses that exceed N95 face masks | - Does not require fit testing  
- Provides head and neck protection  
- Can be re-used by the same healthcare provider |
|---|---|---|
| **Gloves** | - Does not require fit testing  
- cannot be reused | |
| **Gowns** | - Does not require fit testing | |