COVID 19 – WHERE ARE WE NOW?

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Pediatric Infectious Diseases
OBJECTIVES

• Describe the current epidemiology of SARS-CoV2 in the United States and around the world
• Discuss the pathophysiology, clinical features and treatment options for COVID19
• Discuss the guidelines for infection control and prevention of COVID19 in the school setting
CORONAVIRUSES

- Enveloped +RNA virus named for solar corona-like appearance
- Second most prevalent cause of the common cold
- Predilection for upper respiratory tract
- Enveloped virus survive the GI tract
EMERGING CORONAVIRUSES

SARS-CoV (2002-2004) – Severe Acute Respiratory Syndrome

- > 8,000 cases, 10% mortality, 32 countries in 3 months
- Bats → Civet Cats / Raccoon Dogs → Humans

MERS-CoV (2012, 2015)

- > 2,500 cases, ~ 35% mortality, 27 countries
- Bats → Camels → Humans

SARS-CoV-2

- 11 x10^6 cases; 2-3% mortality (increased with age), > 140 countries
- Pangolins--- Bats→ Humans

• The whole genome shares 86% similarity with SARS
• The receptors for both are similar
• Risk factors are similar
• Median incubation times are similar (about 5 days, incubation period 2-14 days)
• Progression of severe disease pattern are similar and around 10 days into the illness
PATHOPHYSIOLOGY OF SARS-COV2
Immune responses related to SARS-CoV2

- The antibody test targets the Viral S Protein
- Sensitivity and specificity are highly variable.
- Detectable antibodies generally take several days to weeks to develop
- IgG usually develops by 14 days after onset of symptoms.
- Cross-reactivity with other coronaviruses has been reported.
- Around 30% fail to produce any antibodies
- Less information available for T-cell responses

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Types of testing available

<table>
<thead>
<tr>
<th>MOLECULAR TEST</th>
<th>ANTIGEN TEST</th>
<th>ANTIBODY TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Also known as...</strong></td>
<td><strong>Rapid diagnostic test</strong></td>
<td><strong>Serological test, serology, blood test, serology test</strong></td>
</tr>
<tr>
<td>Diagnostic test, viral test, molecular test, nucleic acid amplification test (NAAT), RT-PCR test, LAMP test</td>
<td>(Some molecular tests are also rapid tests.)</td>
<td></td>
</tr>
<tr>
<td><strong>How the sample is taken...</strong></td>
<td><strong>Nasal or throat swab</strong></td>
<td><strong>Finger stick or blood draw</strong></td>
</tr>
<tr>
<td>Nasal or throat swab (most tests)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saliva (a few tests)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>How long it takes to get results...</strong></td>
<td><strong>One hour or less</strong></td>
<td><strong>Same day (many locations) or 1-3 days</strong></td>
</tr>
<tr>
<td>Same day (some locations) or up to a week</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Is another test needed...</strong></td>
<td><strong>Positive results are usually highly accurate but negative results may need to be confirmed with a molecular test.</strong></td>
<td><strong>Sometimes a second antibody test is needed for accurate results.</strong></td>
</tr>
<tr>
<td>This test is typically highly accurate and usually does not need to be repeated.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### How is SARS-CoV2 transmitted

<table>
<thead>
<tr>
<th>Source</th>
<th>Mode of transmission</th>
<th>RNA by PCR (Days since onset of symptoms)</th>
<th>Viable virus (Days since onset of symptoms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasopharynx</td>
<td>Droplet</td>
<td>Up to 37 days</td>
<td>Up to 7 days (in mild cases)</td>
</tr>
<tr>
<td>Sputum</td>
<td>Droplet/airborne during aerosol-producing procedures</td>
<td>Up to 37 days</td>
<td>Up to 7 days (in mild cases)</td>
</tr>
<tr>
<td>Stool</td>
<td>No evidence of faecal–oral transmission</td>
<td>&gt;30 days</td>
<td>Only 1 report; uncertain</td>
</tr>
<tr>
<td>Blood</td>
<td>No viable virus to date</td>
<td>Up to 14 days</td>
<td>No</td>
</tr>
<tr>
<td>Urine</td>
<td>No viable virus to date</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Conjunctiva</td>
<td>No viable virus to date</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Macaques with corneal</td>
<td>Yes (inoculation develop infection)</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Vertical</td>
<td>No strong evidence of vertical transmission to date</td>
<td>No</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2**

- Face masks with significant reduction in transmission
- Additional eye protection with some additional protection
- N95 a little more advantage in poorly ventilated areas, definitely in aerosolizing procedures
Treatment options

- Predominantly supportive
- Antiviral Drugs

Others

- Interlukin 6 inhibitors
- Corticosteroids
Developing a successful vaccine against SARS-CoV-2

Strategies for a SARS-CoV-2 vaccine

- Live attenuated vaccine
- Viral vector-based vaccine
- Recombinant protein-based vaccine
- DNA vaccine
- mRNA vaccine

Activation of antigen-presenting cells (e.g., macrophages)

Viral antigen presentation and T cell activation

B cell activation

Memory B cell

CVD8+ T cell

CD4+ T cell

Virus-specific antibodies

Neutralizing antibodies

Elimination of infected cells

Viral hijacking of the immune system

Increased viral uptake

Th2 immunopathology

Production of antibodies

Unprecedented efforts are being made to develop a safe and effective vaccine against SARS-CoV-2.

Currently, scientists around the world are exploring all the potential strategies to develop an efficient vaccine against SARS-CoV-2. These include: 1) live attenuated, 2) viral-vector based (e.g., S protein expressing), 3) recombinant protein-based (e.g., S protein), 4) DNA-based, and 5) mRNA-based vaccines.

Previously, it has been shown that the SARS-CoV-2 spike (S) protein, is an ideal candidate for vaccine development, as this should block the attachment, and thus, clear the virus in the early stages of the infection. An ideal vaccine must produce specific and efficient neutralizing antibodies against SARS-CoV-2. However, vaccines can cause a number of unwanted immune enhancing responses, such as antibody-dependent enhancement (ADE) of viral uptake, and Th2 immunopathology, due to a faulty T cell response triggering a damaging allergic inflammatory response.
Genetic transition

Global Transition

- D614: SARS-CoV-2
- G614: SARS-CoV-2

G614 emerges in Europe

Magnitude of Infection

- SARS-CoV-2 Spike
- G614

Weekly running counts

- Asia
- Oceania
- Europe
- South-America
- North-America
- Africa

Date 2020
REPRODUCTIVE NUMBER ($R_0$)

- SARS-CoV2: 2.28 (estimated, 2-3)

- Influenza: 1.3 (estimated)

- If $R_0$ less than 1: less transmissibility

- As of 7/15: Texas $R_0$ of 1.5
Daily confirmed new cases (5-day moving average)
Outbreak evolution for the current 10 most affected countries

Click any country below to hide/show from the graph:
- Brazil
- Mexico
- US
- India
- Peru
- Russia
- Iran
- Colombia
- Chile
- South Africa
Completed Case Investigations

25,465

Received By DSHS

Groupings of Confirmed Cases

264,313

Cases Reported

Texas Department of Health
Laboratory-Confirmed COVID-19-Associated Hospitalizations

Preliminary cumulative rates as of Jul 04, 2020

Age Selection
- Overall
- 0-4 yr
- 5-17 yr
- 18-49 yr
- 50-64 yr
- 65+ yr

Calendar Week End Date (MMWR Week No.)
Age-adjusted COVID-19-associated hospitalization rates by race and ethnicity, COVID-NET, March – July 4, 2020

- Non-Hispanic American Indian or Alaska Native: 270.5
- Non-Hispanic Black: 221.5
- Hispanic or Latino: 215.8
- Non-Hispanic Asian or Pacific Islander: 60.5
- Non-Hispanic White: 47
COVID-19 TESTING TRENDS

Greater Houston Area

7-day trend of % test positivity for COVID-19

7-day trend of daily # of tests performed

Source: TX Health and Human Services (https://dshs.texas.gov/coronavirus/AdditionalData.aspx)

Note: Excludes days with no tests reported

1. Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery and Waller
TMC DAILY NEW COVID-19 HOSPITALIZATIONS

ICU & Med Surg hospitalizations

- Daily COVID-19 Hospitalizations
- 7-day trend in new daily COVID-19 hospitalizations

April
May
June
July
COVID-19 Testing by Age: United States

Highlight: Children 0-17 years make up a very small share of COVID-19 tests reported to CDC but are more likely to test positive for COVID-19 than the general population.

Commercial Laboratories

Public Health Laboratories

Orange bars/lines represent children 0-4 years
Gray bars/lines represent children 0-17 years

Source: CDC, COVIDView: A Weekly Surveillance Summary of U.S. COVID-19 Activity
COVID-19 Confirmed Cases by Age: United States

Highlights: Children 0-17 years represented 6.1% of all confirmed cases reported to CDC.
### Clinical Features in Children

#### TABLE. Signs and symptoms among 291 pediatric (age <18 years) and 10,944 adult (age 18–64 years) patients* with laboratory-confirmed COVID-19 — United States, February 12–April 2, 2020

<table>
<thead>
<tr>
<th>Sign/Symptom</th>
<th>Pediatric</th>
<th>Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever, cough, or shortness of breath†</td>
<td>213 (73)</td>
<td>10,167 (93)</td>
</tr>
<tr>
<td>Fever§</td>
<td>163 (56)</td>
<td>7,794 (71)</td>
</tr>
<tr>
<td>Cough</td>
<td>158 (54)</td>
<td>8,775 (80)</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>39 (13)</td>
<td>4,674 (43)</td>
</tr>
<tr>
<td>Myalgia</td>
<td>66 (23)</td>
<td>6,713 (61)</td>
</tr>
<tr>
<td>Runny nose§</td>
<td>21 (7.2)</td>
<td>757 (6.9)</td>
</tr>
<tr>
<td>Sore throat</td>
<td>71 (24)</td>
<td>3,795 (35)</td>
</tr>
<tr>
<td>Headache</td>
<td>81 (28)</td>
<td>6,335 (58)</td>
</tr>
<tr>
<td>Nausea/Vomiting</td>
<td>31 (11)</td>
<td>1,746 (16)</td>
</tr>
<tr>
<td>Abdominal pain§</td>
<td>17 (5.8)</td>
<td>1,329 (12)</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>37 (13)</td>
<td>3,353 (31)</td>
</tr>
</tbody>
</table>

*Cases were included in the denominator if they had a known symptom status for fever, cough, shortness of breath, nausea/vomiting, and diarrhea. Total number of patients by age group: <18 years (N = 2,572), 18–64 years (N = 113,985).

† Includes all cases with one or more of these symptoms.

§ Patients were included if they had information for either measured or subjective fever variables and were considered to have a fever if “yes” was indicated for either variable.

¶ Runny nose and abdominal pain were less frequently completed than other symptoms; therefore, percentages with these symptoms are likely underestimates.

<table>
<thead>
<tr>
<th>COVID-19–positive household member</th>
<th>31 (54.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported sick household member</td>
<td>39 (68.4)</td>
</tr>
</tbody>
</table>

#### Symptoms

- Fever* or cough: 47 (62.5)
- Fever*: 35 (61.4)
- Cough (n = 51): 34 (66.7)
- Congestion (n = 35): 21 (60)
- Rhinorrhea (n = 30): 16 (53.3)
- Sore throat (n = 24): 11 (45.8)
- Headache (n = 20): 14 (70)
- Vomiting (n = 43): 10 (23.3)
- Diarrhea (n = 41): 8 (19.5)
- Any GI complaint† (n = 46): 21 (45.7)

Source: CDC, Coronavirus Disease 2019 in Children

**Journal of the Pediatric Infectious Diseases Society** 2020;9(3):373–7
### Clinical Features in Children

#### Table 2. Reported Symptoms at Time of Testing for Patients With a Positive Severe Acute Respiratory Syndrome Coronavirus 2 Test

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Total (n = 424)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever or cough or shortness of breath, n (%)</td>
<td>318 (75.0)</td>
</tr>
<tr>
<td>Fever, n (%)</td>
<td>217 (51.2)</td>
</tr>
<tr>
<td>Cough, n (%)</td>
<td>221 (52.1)</td>
</tr>
<tr>
<td>Shortness of breath, n (%)</td>
<td>62 (14.6)</td>
</tr>
<tr>
<td>Congestion or rhinorrhea, n (%)</td>
<td>133 (31.4)</td>
</tr>
<tr>
<td>Headache, n (%)</td>
<td>76 (17.9)</td>
</tr>
<tr>
<td>Gastrointestinal symptoms, n (%)</td>
<td>74 (17.5)</td>
</tr>
<tr>
<td>Sore throat, n (%)</td>
<td>59 (13.9)</td>
</tr>
<tr>
<td>Myalgias, n (%)</td>
<td>57 (13.4)</td>
</tr>
<tr>
<td>Fatigue, n (%)</td>
<td>26 (6.1)</td>
</tr>
<tr>
<td>Ageusia, n (%)</td>
<td>24 (5.7)</td>
</tr>
<tr>
<td>Anosmia, n (%)</td>
<td>24 (5.7)</td>
</tr>
<tr>
<td>Chest pain, n (%)</td>
<td>24 (5.7)</td>
</tr>
<tr>
<td>Chills, n (%)</td>
<td>16 (3.8)</td>
</tr>
<tr>
<td>Asymptomatic, n (%)</td>
<td>54 (12.7)</td>
</tr>
</tbody>
</table>

- 274/424 (64%) considered to have a positive adult exposure
- 44% with household contact
- 10% non-household contact
- 1.4% contact with a health care worker
- 9.9% if residing in high transmission location
- 4.7% if living in congregant living facility
- 46.7% of asymptomatic children, had a potential adult exposure

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**JPIDS 2020:XX (XX XXXX)** • Otto et al
Multisystem Inflammatory Syndrome in Children (MIS-C):

• An individual aged <21 years presenting with fever*, laboratory evidence of inflammation**, and evidence of clinically severe illness requiring hospitalization, with multisystem (>2) organ involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic or neurological); AND
• No alternative plausible diagnoses; AND
• Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or exposure to a suspected or confirmed COVID-19 case within the 4 weeks prior to the onset of symptoms.

* Fever >38.0°C for ≥24 hours, or report of subjective fever lasting ≥24 hours
** Including, but not limited to, one or more of the following: an elevated C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), fibrinogen, procalcitonin, d-dimer, ferritin, lactic acid dehydrogenase (LDH), or interleukin 6 (IL-6), elevated neutrophils, reduced lymphocytes and low albumin

Additional comments:
• Some individuals may fulfill full or partial criteria for Kawasaki disease but should be reported if they meet the case definition for MIS-C.
• Consider MIS-C in any pediatric death with evidence of SARS-CoV-2 infection

* Suspected MIS-C cases with complete MIS-C case report forms submitted to CDC that met all MIS-C case inclusion criteria
## Summary of School Re-opening Models by Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Current Status</th>
<th>Date of closing</th>
<th>Date of re-opening</th>
<th>Younger students only</th>
<th>Older students only</th>
<th>All Ages</th>
<th>Max class size</th>
<th>Alternate shifts</th>
<th>Alternate days</th>
<th>Facemasks required</th>
<th>Reduced class size</th>
<th>Physical distancing</th>
<th>Increased handwashing</th>
<th>Temperature checks</th>
<th>Viral or antibody testing</th>
<th>Contact tracing</th>
<th>Impact on transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Open (localized)</td>
<td>3/13/2020</td>
<td>5/18/2020</td>
<td>Y</td>
<td>•</td>
<td>•</td>
<td>10</td>
<td>N</td>
<td>Y</td>
<td>Teachers</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>Open</td>
<td>3/16/2020</td>
<td>4/15/2020</td>
<td>Y</td>
<td>•</td>
<td>•</td>
<td>12</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Open (localized)</td>
<td>3/3/2020 – 3/18/2020</td>
<td>5/4/2020</td>
<td>•</td>
<td>Y</td>
<td>•</td>
<td>10</td>
<td>Y/N</td>
<td>(SARS-CoV-2-negative students allowed to not wear masks)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Israel</td>
<td>Open</td>
<td>3/12/2020</td>
<td>5/3/2020</td>
<td>•</td>
<td>•</td>
<td>Y</td>
<td>NA</td>
<td>N</td>
<td>N</td>
<td>Y (&gt;7 years old)</td>
<td>N</td>
<td>N</td>
<td>?</td>
<td>N</td>
<td>Y</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>Open</td>
<td>3/2/2020</td>
<td>4/24/2020</td>
<td>may vary</td>
<td>may vary</td>
<td>may vary</td>
<td>may vary</td>
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<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Unknown</td>
</tr>
<tr>
<td>South Korea</td>
<td>Open</td>
<td>3/2/2020</td>
<td>6/8/2020</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>33% – 67%</td>
<td>Y/N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>Open</td>
<td>3/24/2020</td>
<td>5/14/2020</td>
<td>•</td>
<td>•</td>
<td>Y</td>
<td>NA</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>?</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>Open</td>
<td>3/11/2020</td>
<td>4/20/2020</td>
<td>Y</td>
<td>•</td>
<td>•</td>
<td>15</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>?</td>
<td>?</td>
<td>No significant increase in the growth rate of COVID-19 cases 2</td>
</tr>
<tr>
<td>Country</td>
<td>Status</td>
<td>Date</td>
<td>Description</td>
<td>Y/N</td>
<td>Y/N</td>
<td>NA</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>?</td>
<td>N</td>
<td>N</td>
<td>?</td>
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<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>Open</td>
<td>never closed</td>
<td>never closed</td>
<td>Y/N</td>
<td>Y/N</td>
<td>NA</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>?</td>
<td>N</td>
<td>N</td>
<td>?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>Open</td>
<td>3/16/2020</td>
<td>5/11/2020</td>
<td>Y</td>
<td>Y</td>
<td>50%</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>?</td>
<td>Unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>Open</td>
<td>wint break extended 2 weeks</td>
<td>2/25/2020</td>
<td>Y</td>
<td>Y</td>
<td>NA</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y/N</td>
<td>Y</td>
<td>Y</td>
<td>?</td>
<td>?</td>
<td>Unknown</td>
<td></td>
</tr>
</tbody>
</table>

Y/N indicates variability in implementation within the country; Current status based on UNESCO COVID-19 Impact on Education tracker (https://en.unesco.org/covid19/educationresponse)
RISK CATEGORIZATION IN SCHOOL SETTING

- **Lowest Risk:** Students and teachers engage in virtual-only classes, activities, and events.

- **More Risk:**
  - Small, in-person classes, activities, and events.
  - Groups of students stay together and with the same teacher throughout/across school days and groups do not mix.
  - Students remain at least 6 feet apart and do not share objects (e.g., hybrid virtual and in-person class structures, or staggered/rotated scheduling to accommodate smaller class sizes).

- **Highest Risk:**
  - Full sized, in-person classes, activities, and events.
  - Students are not spaced apart, share classroom materials or supplies, and mix between classes and activities.
# Risk Categorization in the Community Setting

## COVID-19: Coronavirus Disease

### BE INFORMED:

#### Know Your Risk During COVID-19

On a scale of 1 to 10, how risky is...

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Opening the mail</td>
</tr>
<tr>
<td>Low</td>
<td>Getting restaurant takeout</td>
</tr>
<tr>
<td>Low</td>
<td>Pumping gasoline</td>
</tr>
<tr>
<td>Low</td>
<td>Playing tennis</td>
</tr>
<tr>
<td>Low</td>
<td>Going camping</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Grocery shopping</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Going for a walk, run, or bike ride with others</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Playing golf</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Staying at a hotel for two nights</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Sitting in a doctor’s waiting room</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Going to a library or museum</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Eating in a restaurant (outside)</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Walking in a busy downtown</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Spending an hour at a playground</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Having dinner at someone else’s house</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Attending a backyard barbecue</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Going to a beach</td>
</tr>
<tr>
<td>Low-Moderate</td>
<td>Shopping at a mall</td>
</tr>
<tr>
<td>Moderate</td>
<td>Sending kids to school, camp, or day care</td>
</tr>
<tr>
<td>Moderate</td>
<td>Working a week in an office building</td>
</tr>
<tr>
<td>Moderate</td>
<td>Swimming in a public pool</td>
</tr>
<tr>
<td>Moderate</td>
<td>Visiting an elderly relative or friend in their home</td>
</tr>
<tr>
<td>High</td>
<td>Going to a hair salon or barbershop</td>
</tr>
<tr>
<td>High</td>
<td>Eating in a restaurant (inside)</td>
</tr>
<tr>
<td>High</td>
<td>Attending a wedding or funeral</td>
</tr>
<tr>
<td>High</td>
<td>Traveling by plane</td>
</tr>
<tr>
<td>High</td>
<td>Playing basketball</td>
</tr>
<tr>
<td>High</td>
<td>Playing football</td>
</tr>
<tr>
<td>High</td>
<td>Hugging or shaking hands when greeting a friend</td>
</tr>
<tr>
<td>High</td>
<td>Eating at a buffet</td>
</tr>
<tr>
<td>High</td>
<td>Working out at a gym</td>
</tr>
<tr>
<td>High</td>
<td>Going to an amusement park</td>
</tr>
<tr>
<td>High</td>
<td>Going to a movie theater</td>
</tr>
<tr>
<td>High</td>
<td>Attending a large music concert</td>
</tr>
<tr>
<td>High</td>
<td>Going to a sports stadium</td>
</tr>
<tr>
<td>High</td>
<td>Attending a religious service with 500+ worshippers</td>
</tr>
<tr>
<td>High</td>
<td>Going to a bar</td>
</tr>
</tbody>
</table>

Texas Medical Association | 401 W. 15th St. | Austin, TX 78701-1680

www.texmed.org | @texmed | @wearemtra

[Infographic shows risk levels for various activities with numbers indicating risk level 1 to 9].

- **Low Risk**: Activities with risk levels 1-4
- **Low-Moderate Risk**: Activities with risk levels 5-7
- **Moderate Risk**: Activities with risk levels 8-9
- **High Risk**: Activities with risk levels 9-9

*Ranked by physicians from the TMA COVID-19 Task Force and the TMA Committee on Infectious Diseases.*

*Please assume that participants in these activities are following currently recommended safety protocols when possible.*

**Texas Medical Association**

- Physicians Caring for Texas
- www.texmed.org
- @texmed
- @wearemtra

**Texas Children's Hospital**

Affiliated with

Baylor College of Medicine
HOW TO REDUCE THE RISK

• PPE

• Social distancing

• Disinfection

Face Masks & Distancing
Reduce COVID-19 Risk

Chance of COVID-19 transmission based on the following scenarios*

Physical distancing

<table>
<thead>
<tr>
<th>Distance</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1m</td>
<td>12.8%</td>
</tr>
<tr>
<td>1m or more</td>
<td>2.6%</td>
</tr>
</tbody>
</table>

Face masks

<table>
<thead>
<tr>
<th>Type</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without face masks/ respirators</td>
<td>17.4%</td>
</tr>
<tr>
<td>With face masks/ respirators</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

Eye protection

<table>
<thead>
<tr>
<th>Type</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without eye protection</td>
<td>16.0%</td>
</tr>
<tr>
<td>With eye protection</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

* Based on a systematic review and meta-analysis of 172 observational studies
Source: The Lancet
PROMOTING SAFE BEHAVIORS

- Staying Home when Appropriate
- Hand Hygiene and Respiratory Etiquette
- Face coverings
- Adequate Supplies
- Signs and Messages
MAINTAINING HEALTHY ENVIRONMENT

• Cleaning and Disinfection
• Shared Objects
• Ventilation
• Water Systems
• Social distancing measures
• Communal spaces
• Food services
MAINTAINING HEALTHY OPERATIONS

• Protections for Staff and Children at Higher Risk for Severe Illness

• Recognize Signs and Symptoms

• Communication systems: health authority, parents

• Return to School/Work policy
Preparing for someone getting sick

• Recognize signs and symptoms

Have they recently begun experiencing any of the following in a way that is not normal for them?
  o Feeling feverish or a measured temperature greater than or equal to 100.0 degrees Fahrenheit
  o Loss of taste or smell
  o Cough
  o Difficulty breathing
  o Shortness of breath
  o Headache
  o Chills
  o Sore throat
  o Shaking or exaggerated shivering
  o Significant muscle pain or ache
  o Diarrhea And/or vomiting/GI symptoms

Isolate the patient in a private room with door closed, Face mask on patient if not contraindicated

Wear your PPE: Gowns, Gloves, N95 (esp if AGP)/Face mask, Goggles

Evaluate: home or hospital

Disinfect areas used, wait ideally 24 hours, If 24 hours is not feasible, wait as long as possible

Inform school admin

Transport patient safely
AEROSOLIZING GENERATING PROCEDURES (AGP)

1. Patient Population:
   - ventilated, tracheostomy, BiPAP, CPAP, High-Flow Nasal Cannula

2. Procedures:
   - intubation (including procedural intubation i.e., transesophageal echo), CPR, deep suction, nebulized medications, bronchoscopy, flexible laryngoscopy, endoscopy, laparoscopy, mini BAL, bag-mask ventilation, intrapulmonary percussive ventilator (IPV), cough assist, and CPT/vest therapy/PEP therapy, nasopharyngeal specimen collection
TEXAS EDUCATION AGENCY SUMMARY

• Provide Notice

• Prevent

• Respond

• Mitigate
CONTACTS AND CLEARANCE TO RETURN

Close contact:
-- Within 6 feet without a mask
-- Duration of 15 mins or more
-- Directly exposed to secretions

Clearance to Return

• Symptom based criteria for COVID19
  -- At least 72 hours of being fever free without fever meds
  AND
  -- at least 72 hours with other resolved symptoms
  AND
  -- 10 days from the first day of symptoms

• Test based for COVID 19
  - Resolution of fever/symptoms + 2 COVID tests 24 hours apart

• Alternate diagnosis by physician
CASE DISCUSSIONS
"WE LEAD IN OUR PROFESSIONAL LIVES AND OUR PERSONAL LIVES."

– Mark A. Wallace Maxim No. 3

Lead by example at work and in your community.

Always wear a mask
Wash your hands frequently
Continuing safe social distancing
Hold your colleagues and friends accountable
Texas Children’s Hospital is affiliated with Baylor College of Medicine in the areas of pediatrics, pediatric surgery, and obstetrics and gynecology. Currently and throughout the 60-year partnership, Texas Children’s serves as Baylor’s primary pediatric training site, and more than 1,500 Baylor faculty are the division chiefs and staff physicians of Texas Children’s patient care centers.