COVID-19 Update on Vaccine, Risk Mitigation, and Sports

February 5, 2021
12:00 p.m.- 1:30 p.m.
Today’s Agenda

• COVID-19 Regional Update and Vaccine Availability
  o Jennifer Watts, MD, MPH

• Vaccine Review and In-Person School During a Pandemic
  o Jennifer Goldman, MD, MS-CR and Jennifer Schuster, MD, MSCI

• Return to Sports
  o Amol Purandare, MD and Brian Harvey, DO

• Q & A
Important Details

• All mics are muted during the webinar
• Submit your questions in the chat box
COVID-19: regional update and vaccine availability

Jennifer Watts, MD, MPH, Medical Director Emergency Management
Kansas City Region COVID-19 Data Hub

DAILY REGIONAL SNAPSHOT

This dashboard compiles several sources from the Kansas City region to display a best estimate of the current COVID-19 situation at the regional level. Our methodology is outlined in our data dictionary and may be summarized in ways that differ from other information resources. Data displayed is provisional and subject to validation over time to create a more accurate picture. Highlighted trend lines below show verified 7-day rolling averages and include a 10-day lag to account for delayed data reporting. Daily bars after the trend line represent emerging data, which is often not yet inclusive of all jurisdictions’ data. Trend lines and daily bars attribute incidents to their date of occurrence whenever possible. Newly-Reported data communicates the change in total recorded cases and deaths since the previous day, which may have occurred on an earlier date.

**Cases**

164
Newly Reported
149,507
Total Reported

What to look for: Trends in case rates can represent changes in the amount of COVID-19 in a community. These numbers are also influenced by the amount of testing being conducted. Case rates rely on data results that can take days to complete and report, and therefore are subject to a delay.

Read more about the cases data sources.

**Deaths**

1
Newly Reported
1,889
Total Reported

What to look for: Trends in death rates can represent changes in the amount of death from COVID-19 in a community. These numbers are also subject to a data delay due to reporting times for death certificates.

Read more about the deaths data sources.

**Hospitalizations**

115
Daily Average New Hospitalizations
806
Total Weekly New Hospitalizations

What to look for: Trends in hospitalizations represent changes in the number of symptomatic individuals being treated in the hospital. High levels of hospitalization typically indicate greater prevalence of COVID-19 in the community.

Read more about the hospitalizations data sources.

Hospitalization data is updated M-F before 8 am, and before 2 pm on the weekend. Case, deaths, and testing information is updated nightly before 8 pm. Please send questions and feedback to covidhub@merck.org.
Vaccine Availability

- Vaccines available
- State roll out plans
  - Missouri
  - Kansas

Map: Teacher Eligibility for Vaccines By State

Education Week, 02/01/2021
Missouri

COVID-19 Vaccine Availability

**Phase 1A**
- Long-Term Care Facility Residents and Staff
- Healthcare Workers (Patient Facing)
- EMS/EMT/Paramedics

**Phase 1B**
- Tier 1: First Responders & Emergency
- Tier 2: High Risk Individuals
- Tier 3: Critical Infrastructure

**Phase 2**
- Accelerating Economic Recovery
- Disproportionately Affected Populations
- Homeless

**Phase 3**
- All Missouri Residents
Kansas

Kansas Vaccination Phases | By Population

1. Healthcare workers
   - Residents or patients in Long-term care (LTC), senior housing or LTC-supported independent living
   - Workers critical to pandemic response continuity
   - High-contact critical workers
   - Persons prioritized in previous phases

2. Persons Aged 65+

3. Aged 16-64 with severe medical risks
   - Other critical workers
   - Unvaccinated persons prioritized in previous phases
   - Late April - Mid May

4. Aged 16-64 with other medical risks
   - All unvaccinated persons prioritized in previous phases
   - June

5. Rest of pop. 16+
   - Children*
   - All unvaccinated persons prioritized in previous phases

*Subject to further research on Vaccine risks and effectiveness for children; Note: Dates of phases are dependent upon vaccine supply.
Disclosure

• These slides were finalized on February 3, 2021 and some information is likely outdated
Definitions

**SARS-CoV-2**: Severe Acute Respiratory Syndrome Coronavirus 2

**COVID-19**: Coronavirus disease 2019
Timeline

COVID-19 pandemic (months)

0: SARS-CoV-2 detected
1: Genome published
3: Pandemic declared
6: Phase 3 trials begin enrollment
12: 1st vaccine administered through EUA

H1N1 pandemic (months)

0: 1st case of human H1N1
2: Genome published
5: Pandemic declared
6: FDA approval of vaccine
12: 1st vaccine administered in US
## Coronavirus Vaccine Tracker

**By Carl Zimmer, Jonathan Corum and Sui-Lee Wee**  
*Updated Jan. 31, 2021*

<table>
<thead>
<tr>
<th>Platform</th>
<th>Developer</th>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3</th>
<th>LIMITED</th>
<th>APPROVED</th>
<th>ABANDONED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nucleic acid</td>
<td><strong>moderna</strong></td>
<td>37</td>
<td>24</td>
<td>20</td>
<td>8</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Viral vector</td>
<td><strong>BIONTECH</strong>, <strong>Pfizer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein subunit</td>
<td><strong>Oxford</strong>, <strong>AstraZeneca</strong>, <strong>janssen</strong>, <strong>MERCK</strong>, <strong>NOVAVAX</strong>, <strong>gsk</strong>, <strong>SANOFI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Vaccines testing safety and dosage**
- **Vaccines in expanded safety trials**
- **Vaccines in large-scale efficacy tests**
- **Vaccines in early or limited use**
- **Vaccines approved for full use**
- **Vaccines abandoned after trials**
Genetic Vaccines
- mRNA

Recombinant Viral Vector Vaccines
- Ad5
- Ad26
- chAd

Recombinant Protein Vaccines
- Spike
- Receptor Binding Domain

Inactivated Whole Virus Vaccines

Adapted from New York Times Coronavirus Vaccine Tracker
nytimes.com/vaccinetracker
Where did this technology come from?

Kizzmekia S. Corbett, Ph.D.
National Institutes of Health

https://abcnews.go.com/Health/kizzmekia-corbett-african-american-woman-praised-key-scientist/story?id=74679965
https://asm.org/Biographies/Kizzmekia-S-Corbett-PhD
This technology has been used before
A brief trip back to high school science class…

mRNA Vaccines (Pfizer/ Moderna)

- mRNA is labile
  - Cold storage
  - Short lived in the cell
- Studied for over a decade

Facts

- mRNA does not live inside you forever
- mRNA does not go into your cell nucleus
- mRNA does not go into your DNA
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>BNT162b2 (N=18,860)</th>
<th>Placebo (N=18,846)</th>
<th>Total (N=37,706)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race or ethnic group — no. (%)†</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>15,636 (82.9)</td>
<td>15,630 (82.9)</td>
<td>31,266 (82.9)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>1,729 (9.2)</td>
<td>1,763 (9.4)</td>
<td>3,492 (9.3)</td>
</tr>
<tr>
<td>Asian</td>
<td>801 (4.2)</td>
<td>807 (4.3)</td>
<td>1,608 (4.3)</td>
</tr>
<tr>
<td>Native American or Alaska Native</td>
<td>102 (0.5)</td>
<td>99 (0.5)</td>
<td>201 (0.5)</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
<td>50 (0.3)</td>
<td>26 (0.1)</td>
<td>76 (0.2)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>449 (2.4)</td>
<td>406 (2.2)</td>
<td>855 (2.3)</td>
</tr>
<tr>
<td>Not reported</td>
<td>93 (0.5)</td>
<td>115 (0.6)</td>
<td>208 (0.6)</td>
</tr>
<tr>
<td>Hispanic or Latinx</td>
<td>5,266 (27.9)</td>
<td>5,277 (28.0)</td>
<td>10,543 (28.0)</td>
</tr>
<tr>
<td><strong>Age group — no. (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16–55 yr</td>
<td>10,889 (57.7)</td>
<td>10,896 (57.8)</td>
<td>21,785 (57.8)</td>
</tr>
<tr>
<td>&gt;55 yr</td>
<td>7,971 (42.3)</td>
<td>7,950 (42.2)</td>
<td>15,921 (42.2)</td>
</tr>
</tbody>
</table>
Safety

A Local Events

16–55 Yr of Age, Dose 1

B Systemic Events and Use of Medication

16–55 Yr of Age, Dose 1

Confirmed reports of anaphylaxis, time to symptom onset*

Most (64/71, 90%) present in 30 min or less

* Not shown: 54 m (1), 90 m (1), 150 m (1), and 20 h (1)

Data through January 18, 2021

Reported vaccine doses administered | Anaphylaxis cases | Reporting rate (analytic period Dec 14-Jan 18)
--- | --- | ---
Pfizer-BioNTech: 9,943,247 | 50 | 5.0 per million doses admin.
Moderna: 7,581,429 | 21 | 2.8 per million doses admin.
Fact

• These vaccines are SAFE
• People from a variety of ages, races, and ethnic backgrounds were included
• People with a history of COVID-19 were included
# V-safe data as of 1/20/2021

<table>
<thead>
<tr>
<th>Category</th>
<th>Pfizer-BioNTech</th>
<th>Moderna</th>
<th>All COVID-19 vaccines</th>
</tr>
</thead>
<tbody>
<tr>
<td>People receiving 1 or more doses in the United States*</td>
<td>12,153,536</td>
<td>9,689,497</td>
<td>21,843,033</td>
</tr>
<tr>
<td>Registrants completing at least 1 v-safe health check-in†</td>
<td>997,042</td>
<td>1,083,174</td>
<td>2,080,216</td>
</tr>
<tr>
<td>Pregnancies reported to v-safe</td>
<td>8,633</td>
<td>6,498</td>
<td>15,131</td>
</tr>
</tbody>
</table>
Reactogenicity reported to v-safe

<table>
<thead>
<tr>
<th>Local and systemic reactions, day 0-7*,†</th>
<th>All vaccines %</th>
<th>Pfizer-BioNTech dose 1 %</th>
<th>Pfizer-BioNTech dose 2 %</th>
<th>Moderna dose 1 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>70.7</td>
<td>67.7</td>
<td>74.8</td>
<td>70.1</td>
</tr>
<tr>
<td>Fatigue</td>
<td>33.4</td>
<td>28.6</td>
<td>50.0</td>
<td>29.7</td>
</tr>
<tr>
<td>Headache</td>
<td>29.4</td>
<td>25.6</td>
<td>41.9</td>
<td>26.0</td>
</tr>
<tr>
<td>Myalgia</td>
<td>22.8</td>
<td>17.2</td>
<td>41.6</td>
<td>19.6</td>
</tr>
<tr>
<td>Chills</td>
<td>11.5</td>
<td>7.0</td>
<td>26.7</td>
<td>9.3</td>
</tr>
<tr>
<td>Fever</td>
<td>11.4</td>
<td>7.4</td>
<td>25.2</td>
<td>9.1</td>
</tr>
<tr>
<td>Swelling</td>
<td>11.0</td>
<td>6.8</td>
<td>26.7</td>
<td>13.4</td>
</tr>
<tr>
<td>Joint pain</td>
<td>10.4</td>
<td>7.1</td>
<td>21.2</td>
<td>8.6</td>
</tr>
<tr>
<td>Nausea</td>
<td>8.9</td>
<td>7.0</td>
<td>13.9</td>
<td>7.7</td>
</tr>
</tbody>
</table>
Fact: no steps were skipped in making the vaccines
Fact

• The COVID-19 vaccines have NOT been linked to miscarriages or infertility

• The CDC, WHO, and ACOG do not recommend withholding COVID-19 vaccine in pregnant and lactating women
Efficacy

Both mRNA vaccines are ~95% effective in preventing COVID-19
Fact

• These vaccines are really good at preventing severe disease
  • Pfizer: 1 (vaccine) vs 9 (placebo)
  • Moderna: 0 (vaccine) vs 30 (placebo)
Fact: The vaccine ingredients are readily available

WHAT ARE THE INGREDIENTS IN THE PFIZER-BIONTECH COVID-19 VACCINE?
The Pfizer-BioNTech COVID-19 Vaccine includes the following ingredients: mRNA, lipids ((4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate), 2 [(polyethylene glycol)-2000]-N,N-ditetradecylacetamide, 1,2-Distearoyl-sn-glycero-3-phosphocholine, and cholesterol), potassium chloride, monobasic potassium phosphate, sodium chloride, dibasic sodium phosphate dihydrate, and sucrose.

WHAT ARE THE INGREDIENTS IN THE MODERNA COVID-19 VACCINE?
The Moderna COVID-19 Vaccine contains the following ingredients: messenger ribonucleic acid (mRNA), lipids (SM-102, polyethylene glycol [PEG] 2000 dimyristoyl glycerol [DMG], cholesterol, and 1,2-distearoyl-sn-glycero-3-phosphocholine [DSPC]), tromethamine, tromethamine hydrochloride, acetic acid, sodium acetate, and sucrose.
SARS-CoV-2

Gene for Spike Protein

Spike Protein

Genetic Vaccines
- mRNA

Recombinant Viral Vector Vaccines
- Ad5
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Inactivated Whole Virus Vaccines

Adapted from New York Times Coronavirus Vaccine Tracker
nytimes.com/vaccinetracker
COVID-19 Astra Zeneca/ Oxford Vaccine

Chimpanzee adenovirus

ChAdOx1 viral vector

Modified

Unable to cause disease

ChAdOx1 nCoV-19 vaccine

Spike protein

Genes coding spike protein

Cells express spike protein

Body produces antibodies against spike proteins

If infected, immune system attacks SARS-CoV-2
Viral vector vaccines

- AstraZeneca results
  - 2 dose series, easily distributable
  - 60% effective
  - 0 cases of severe disease

- Janssen/ Johnson and Johnson
  - 1 dose series, easily distributable
  - 66% effective (72% in US)
  - 85% effective against severe disease (hospitalization)
SARS-CoV-2

- Spike Protein

Gene for Spike Protein

Genetic Vaccines
- mRNA

Recombinant Viral Vector Vaccines
- Ad5
- Ad26
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Recombinant Protein Vaccines
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Inactivated Whole Virus Vaccines

Adapted from New York Times Coronavirus Vaccine Tracker
nytimes.com/vaccinetracker
Protein subunit vaccines

- Novavax
  - 89% efficacy (6 cases in vaccine group vs 56 cases in placebo group)
    - Includes UK data
  - 60% efficacy in S. Africa
    - 15 cases in vaccine group vs 29 cases (1 severe) in placebo group
Fact

- The vaccines do NOT give you COVID-19
- The vaccines do NOT cause a positive respiratory COVID-19 test
- Some people have side effects
  - This is your body practicing fighting infection
  - It is OK to take fever/ pain relievers to feel better
  - Most go away within 24-36 hours
How will variants affect vaccines?

mRNA-1273 vaccine induces neutralizing antibodies against spike mutants from global SARS-CoV-2 variants

Kai Wu, Anne P Werner, Juan I Molina, Matthew Koch, Angela Choi, Guillaume B. E. Stewart-Jones, Hamilton Bennett, Seyhan Boyoglu-Barnum, Wei Shi, Barney S. Graham, Andrea Carl, Kizzmekia S. Corbett, Robert A. Seder, Darin K. Edwards

doi: https://doi.org/10.1101/2021.01.25.427948

This article is a preprint and has not been certified by peer review [what does this mean?]

Neutralization of N501Y mutant SARS-CoV-2 by BNT162b2 vaccine-elicited sera

Xuping Xie, Jing Zou, Camila R. Fontes-Garrias, Hongjie Xia, Kena A. Swanson, Mark Cutler, David Cooper, Vineet D. Menachery, Scott Weaver, Philip R. Dormitzer, Pei-Yong Shi

doi: https://doi.org/10.1101/2021.01.07.425740

This article is a preprint and has not been certified by peer review [what does this mean?]
In-person school during a pandemic
Can in-person school be safe during the COVID-19 pandemic?

YES.....only with a developed plan and mitigation strategies in place
**Spring 2020**
- Schools closed
- No data available on COVID-19 transmission in schools
- Children considered to be potential super spreaders
- Extrapolating from other viruses

**Summer/Fall 2020**
- Some schools begin to open
- Data become available on COVID-19 transmission with mitigation strategies
- Some in-person school transmission data

**Winter 2020/2021**
- Readily available data from many sources about the effectiveness of mitigation strategies in schools to decrease COVID-19 transmission
- Examples of increased transmission in schools when mitigation strategies are not followed
Fact – Children get COVID-19

Children and COVID-19: 1/28/21
Summary of State-Level Data Provided in this Report

Detail and links to state/local data sources provided in Appendix

Cumulative Number of Child COVID-19 Cases*
• 2,816,775 total child COVID-19 cases reported, and children represented 12.8% (2,816,775/21,963,445) of all cases
• Overall rate: 3,742 cases per 100,000 children in the population

Hospitalizations (24 states and NYC reported)*
• Children were 1.2%-2.9% of total reported hospitalizations, and between 0.1%-2.5% of all child COVID-19 cases resulted in hospitalization

Mortality (43 states, NYC and Guam reported)*
• Children were 0.00%-0.21% of all COVID-19 deaths, and 11 states reported zero child deaths
• In states reporting, 0.00%-0.05% of all child COVID-19 cases resulted in death
Fact – Children can transmit SARS-CoV-2

A large COVID-19 outbreak in a high school 10 days after schools’ reopening, Israel, May 2020

School fully reopens

May 17th

Heat wave

May 19th-21st

1st COVID-19 case

May 26th

2nd COVID-19 case

May 27th

School closed

May 28th-30th

• School community tested
  • 25/151 (16.5%) staff
  • 153/1,161 (13%) students
Lessons learned

• Wear masks
  • Exempt during heat wave
• Physically distance
  • 35-38 students/ class, <3 feet apart
• Don’t come to school sick
  • Index cases were sick
• Students should be cohorted for school activities
  • Extracurricular activities, sports teams and dance classes, were mixed with high participation rates
Fact – Mitigation strategies decrease transmission of SARS-CoV-2

Fact – Mitigation strategies decrease transmission of SARS-CoV-2 in schools

MASK
PHYSICAL DISTANCE
HAND HYGIENE
CLEANING
CONTACT TRACING
FIGURE 2. Community and school-associated COVID-19 incidence (cases per 100,000) and percentage of positive test results, by week — Wood County, Wisconsin, August 31–November 29, 2020

- Wood County total cases
- Total cases in all school districts
- Cases attributable to in-school spread in all school districts
- Percentage of positive test results in Wood County

Week beginning

K-12 schools can have in-person learning with limited in-school COVID-19 spread

17 K-12 schools in rural Wisconsin opened and implemented measures to limit spread:
- Used masks
- Established groups of 11-20 students
- Staff maintained 6 feet of distance, if possible
- Quarantined after exposures

Teachers reported more than 92% of students used masks

During 13 weeks of in-person learning:
- 7 of 4,876 students
- 0 of 654 staff

No spread is known to have occurred to or from staff in school despite some times with high community spread

*Weekly incidence of 34 to 1,189 per 100,000 persons in the community; 7-40% positive COVID-19 tests

CDC.GOV

bit.ly/MMWR12621
11 school districts were open for in-person instruction for all 9 weeks of the first quarter

>90,000 students and staff attended school in-person
773 community-acquired SARS-CoV-2 infections were documented
32 infections were acquired within schools
No child-to-adult transmission of SARS-CoV-2
Factors Associated with Positive SARS-CoV-2 Test Results in Outpatient Health Facilities and Emergency Departments Among Children and Adolescents Aged <18 Years — Mississippi, September–November 2020

Charlotte V. Hobbs, MD1; Lora M. Martin, MSN1,2; Sara S. Kim, MPH3; Brian M. Kirmse, MD1; Lisa Haynie, PhD2; Sarah McGraw, MSN1,2; Paul Byers, MD3; Kathryn G. Taylor, MD4; Manish M. Patel, MD3; Brendan Flannery, PhD3; CDC COVID-19 Response Team

Compared with children who tested negative for the virus that causes COVID-19, children who tested positive were:

More likely to have...
- Attended gatherings
- Weddings
- Parties
- Playdates
- Funerals

Not more likely to have...
- Attended child care or school in person

*In the 2 weeks before the positive test
Case control investigation (154 case-patients, 243 control participants), MS, September–November, 2020

CDC.GOV
bit.ly/MMWR121520

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Case-patients</th>
<th>Control-participants</th>
<th>P-value†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship to close contact with known COVID-19 § (n = 204)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family member</td>
<td>67 (64)</td>
<td>48 (48)</td>
<td>0.02</td>
</tr>
<tr>
<td>Friend</td>
<td>8 (8)</td>
<td>15 (15)</td>
<td>0.10</td>
</tr>
<tr>
<td>School classmate</td>
<td>16 (15)</td>
<td>27 (27)</td>
<td>0.04</td>
</tr>
<tr>
<td>School or child care exposure ≤14 days before SARS-CoV-2 test § (missing = 7)</td>
<td></td>
<td></td>
<td>0.24</td>
</tr>
<tr>
<td>In classroom or child care</td>
<td>95 (62)</td>
<td>161 (68)</td>
<td></td>
</tr>
<tr>
<td>At home</td>
<td>58 (38)</td>
<td>76 (32)</td>
<td></td>
</tr>
<tr>
<td>Among participants attending school or child care (n = 256) §</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days per week, mean</td>
<td>4.6 (0.9)</td>
<td>4.5 (1.0)</td>
<td>0.24</td>
</tr>
<tr>
<td>Hybrid model with some days at home</td>
<td>18 (19)</td>
<td>36 (23)</td>
<td>0.46</td>
</tr>
<tr>
<td>&gt;10 students per classroom</td>
<td>60 (76)</td>
<td>96 (72)</td>
<td>0.45</td>
</tr>
<tr>
<td>Indoor school activities</td>
<td>17 (19)</td>
<td>29 (19)</td>
<td>1.00</td>
</tr>
</tbody>
</table>
COVID-19 Trends Among Persons Aged 0–24 Years — United States, March 1–December 12, 2020

• 62% K–12 offered full or partial in-person learning
• COVID-19 incidence in general population with:
  • in-person education (401 per 100,000)
  • virtual/online education (418 per 100,000)
COVID-19 Trends Among Persons Aged 0–24 Years — United States, March 1–December 12, 2020

• Schools provide a structured environment that can support adherence to mitigation strategies

• When community transmission is high, cases in schools should be expected, and as with any group setting, schools can contribute to COVID-19 transmission, especially when mitigation measures are not implemented
The Swiss Cheese Model

Multiple Layers Improve Success
The Swiss Cheese Respiratory Pandemic Defense recognizes that no single intervention is perfect at preventing the spread of the coronavirus. Each intervention (layer) has holes.

**Personal** responsibilities
- Physical distance, stay home if sick
- Hand hygiene, cough etiquette
- If crowded, limit your time

**Shared** responsibilities
- Ventilation, outdoors, air filtration
- Quarantine and isolation
- Masks
- Avoid touching your face
- Fast and sensitive testing and tracing
- Government messaging and financial support
- Vaccines

Source: Adapted from Ian M. Mackay (virologydownunder.com) and James T. Reason, Illustration by Rose Wong

TABLE 3. Parental attitudes and concerns about school reopening strategies and mask mandates, by race/ethnicity — ENGINE Insights, United States, 2020

<table>
<thead>
<tr>
<th>Questions and responses</th>
<th>Overall*</th>
<th>White, non-Hispanic*</th>
<th>Black, non-Hispanic*</th>
<th>Hispanic or Latino*</th>
<th>Other,† non-Hispanic*</th>
</tr>
</thead>
<tbody>
<tr>
<td>In light of the COVID-19 pandemic, how comfortable would you be with the following:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your children’s school(s) reopening at full capacity in the fall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very comfortable/Somewhat comfortable</td>
<td>52.7 (48.9–56.4)</td>
<td>57.1 (52.4–61.8)</td>
<td>43.0 (32.0–53.9)§</td>
<td>53.3 (44.7–61.9)</td>
<td>32.5 (20.1–44.9)§</td>
</tr>
<tr>
<td>Your children’s school(s) reopening at 50% capacity in the fall, with the other 50% dedicated to virtual learning</td>
<td>66.2 (62.6–69.8)</td>
<td>67.9 (63.5–72.4)</td>
<td>58.2 (47.1–69.3)</td>
<td>67.1 (59.0–75.2)</td>
<td>64.8 (52.1–77.6)</td>
</tr>
<tr>
<td>Your children’s school(s) reopening in the fall exclusively with virtual learning</td>
<td>69.7 (66.2–73.2)</td>
<td>69.1 (64.7–73.6)</td>
<td>73.3 (63.7–82.9)</td>
<td>69.8 (61.8–77.9)</td>
<td>66.7 (53.9–79.6)</td>
</tr>
<tr>
<td>When school resumes in the fall, do you believe wearing masks/facial coverings should be mandated for everyone (both students and staff)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, at all times</td>
<td>68.3 (64.8–71.8)</td>
<td>62.5 (57.9–67.1)</td>
<td>73.1 (63.4–82.7)</td>
<td>79.5 (72.7–86.4)§</td>
<td>66.9 (54.2–79.5)§</td>
</tr>
</tbody>
</table>
School closure significantly increases the risks for:

(1) physical health
(2) addiction to video games and binge watching
(3) alteration of circadian rhythms
(4) profound effect on academic achievement
Trends in ED Visits Related to Abuse/Neglect & Mental Health in Children < 18
Conclusions

• COVID-19 vaccines are safe and effective
• Mitigation strategies work
• Mitigation strategies work in the school setting
• Be ready to address the pandemic effects on children
Sports Medicine at Children's Mercy

COVID – 19 and Return to Sports Recommendations

Amol Purandare, MD
Brian Harvey, DO
COVID – 19 (SARS-CoV2)

- Changed sports as we knew it
- Affects all organs
- For athletes there are 2 primary health concerns
  - Physical Deconditioning
  - Potential heart involvement
Physical Deconditioning

- COVID-19 has affected fitness in two ways
  - Reduced or limited training for infection prevention
  - Reduced or limited play after symptomatic infection
- Effects may not be obvious
- Children are at risk for long term complications
COVID-19: Cardiac (Heart)

- Heart Concerns
  - Inflammation of the heart
  - Arrhythmia
  - Cardiac arrest on the field of play

- Heart Symptoms
  - Chest Pain, Shortness of Breath
  - Dizziness, passing out, near passing out, fatigue
What to do after a SARS-CoV2 (COVID-19) Infection

- Recommendations may differ
  - American Academy of Pediatrics
  - American College of Cardiology
  - Professional
  - Collegiate
  - High School, Middle School, Elementary school
  - State to state
Children's Mercy Recommendations

- Severity Broken down into groups
  - Age
    - Less Than 12 years old
    - Greater Than 12 years old
  - Symptom Duration (cough, sore throat, fever, fatigue, diarrhea etc)
    - Mild - Less than 4 days
    - Moderate - Greater than 4 days, non-ICU hospitalization
    - Severe – MIS-C, ICU hospitalization
RETURN TO PLAY AFTER COVID-19 INFECTION IN PEDIATRIC PATIENTS UNDER THE AGE OF 12

(1/19/2021)

- **Asymptomatic** (positive test with no symptoms)
  - Consider medical evaluation for any concerns (i.e. past medical history, family history of concerning symptoms) PRIOR to return to activity
  - No exercise for at least 10 days from positive test, then may begin light activity

- **Mild** (<4 days of fever >100.4°F, short duration of myalgia, chills and lethargy)
  - Athlete should be evaluated by their primary care physician prior to return to activities
  - If no concerning symptoms, past medical or family history or physical exam findings may clear for gradual return to play

- **Obtain ECG**
  - Normal ECG
  - Abnormal ECG

- **Moderate** (4 days of fever >100.4°F, myalgia, chills or lethargy or those who had a non-ICU hospital stay and no evidence of MIS-C)
  - No exercise or sport until evaluated by primary care physician

- **Severe** (ICU hospitalization or MIS-C diagnosis)
  - No exercise until further evaluation by a pediatric cardiologist
  - Cleaned to return to play by pediatric cardiologist

- **Consider ECG with any cardiac concerns for history of physical exam or if the athlete participates in sports more than 2 days per week**

*Should complete a gradual return to play while observing for any concerning symptoms*
COVID–19: Asymptomatic (no symptoms)

- Consider an evaluation by their primary care physician prior to the return to sport
- Cleared to do light exercise after 10 days from positive test
  - Monitoring for symptoms during this 10-day isolation period
- A gradual return to play while observing for cardiac (heart) symptoms is recommended
COVID–19: Mild Infection

- Athletes should be evaluated by their primary care physician **PRIOR to the return to sport**
- Cleared to do light exercise after 10 days from positive test
  - Monitoring for symptoms during this 10-day isolation period
- Once cleared, a gradual return to play while observing for cardiac (heart) symptoms is recommended
COVID-19: Moderate

- Athlete should be evaluated by their primary care physician PRIOR to the return to sport
- No exercise until cleared by their primary care physician
  - Monitoring for symptoms during this 10 day isolation period
- Once cleared, a gradual return to play while observing for cardiac (heart) symptoms is recommended

Sports Medicine Center
CHILDREN’S MERCY KANSAS CITY
COVID-19: Severe

- Athlete should be evaluated by a pediatric cardiologist
- **No exercise** until further evaluation by pediatric cardiologist
- If cleared by cardiology may then begin a gradual return to play while observing for any cardiac (heart) symptoms
RETURN TO PLAY AFTER COVID-19 INFECTION IN PEDIATIC PATIENTS AGED 12 AND OVER

(1/19/2021)

Asymptomatic
(positive test with no symptoms)

Mild
(<4 days of fever >100.4°F, short duration of myalgia, chills and lethargy)

Moderate
(>4 days of fever >100.4°F, myalgia, chills or lethargy or those who had a non-ICU hospital stay and no evidence of MIS-C)

Severe
(ICU hospitalization or MIS-C diagnosis)

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Athlete should be evaluated by their primary care physician prior to return to activities

High School aged athlete?

Any cardiac concerns (by history or physical exam)?

Obtain ECG

Normal ECG

Abnormal ECG

If no concerning symptoms, past medical or family history or physical exam findings may clear for gradual return to play

No exercise for at least 10 days from positive test OR onset of symptoms

No exercise until further evaluation by a pediatric cardiologist

Cleared to return to play by pediatric cardiologist

Should complete a gradual return to play while observing for any concerning symptoms*
COVID–19: Asymptomatic (No symptoms)

- Athlete should be evaluated by their primary care physician PRIOR to the return to sport.
- Cleared to do light exercise after 10 days from positive test.
  - Monitoring for symptoms during this 10 day isolation period.
- Once cleared, a gradual return to play while observing for cardiac (heart) symptoms is recommended.
COVID-19: Mild Infection

- Athlete should be evaluated by their primary care physician PRIOR to the return to sport
  - They may need further testing to be done pending their exam with their primary care physician
- If cleared: Start light exercise after 10 days from onset of symptoms or positive test
- Once cleared, a gradual return to play while observing for cardiac symptoms is recommended
COVID-19: Moderate/Severe Infection

- Athlete should be evaluated by a pediatric cardiologist
- **No exercise** until further evaluation by pediatric cardiologist
- If cleared by cardiology may then begin a gradual return to play while observing for any cardiac (heart) symptoms
Return to Play – What am I looking for?

- Observe for cardiac (heart) symptoms:
  - Chest pain
  - Dizziness
  - Shortness of breath
  - Fainting/Syncope
  - Decreased exercise tolerance
Return to Play/Sport

• Phase 1 – 2 days
  – Light aerobic activity
    • Brisk Walk, Exercise Bike, light jog
    • No strength training
  – 70% max heart rate
  – 15 minutes

• Phase 2 – at least 1 day
  – Aerobic Exercise
    • Running drills
    • No strength training
  – 80% max heart rate
  – 30 minutes
Return to Play/Sport

• Phase 3 – at least 1 day
  – Increased exercise
    • Sport specific drills
    • Strength training
  – 80% max heart rate
  – 45 minutes

• Phase 4 – at least 2 days
  – Increased Sport Specific Exercise
  – 80% max heart rate
  – 60 minutes
Return to Play/Sport

- **Phase 5** – 1 day
  - Resume normal training activities and duration

- **Phase 6**
  - Return to competition with no restrictions
What about those with "persistent" symptoms

- If not previously cleared by Cardiology and still symptomatic, athlete should reach out to their licensed health care provider

- If patient has been cleared by Cardiology and has persistent symptoms: Reconditioning can take twice as long as their symptoms last
  - Time
  - Patience
  - Return to play is slow
Algorithm Caveat

- This algorithm is designed for athletes and return to sport.
- Everyday play and PE are not included
  - Be aware of symptoms
  - Monitor for decreased play and shortness of breath
All symptomatic patients under 12 who have tested positive should be evaluated and cleared by a licensed health care provider prior to return to activities.

All patients over 12 who have tested positive should be evaluated and cleared by a licensed health care provider prior to returning to sports activities.

All patients need to complete a gradual return to play once they have been cleared to return to activities.
As a Reminder

- Please complete the feedback survey emailed to you post-webinar.

- For additional resources and to request support, see the Returning to School and the Community Safely page on the CM website (www.cmh.edu):
  - Webinar recording and slides
  - Returning to School During COVID-19 Guidelines, Return to sports, and other materials
  - COVID-19 School Assistance form

- To receive the latest updates on COVID-19 and schools, subscribe to our COVID-19 newsletter here.
Q & A
Thank you for joining us!

“We’re not going to get back to normal until we get children back into school, for the good of the parents and the good of the community”

Anthony Fauci, MD