

## ENVIRONMENTAL SCAN

# COVID-19 Guidance for Youth Sports

07/10/2021

## Key Findings

- Most of the available evidence on sport-related severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission and outbreaks is from fall 2020 in the pre-Delta, pre-vaccination period.
- Available peer-reviewed and pre-print evidence details risk reduction strategies utilized by youth sports associations in the United States (US), including mask-wearing, symptom screening and testing requirements in order to participate in sports (known as “Test-to-Play”). In particular, the “Test-to-Play” program in Utah allowed for approximately 95% of extra-curricular activities to continue through a period of high community prevalence from November 2020 to March 2021.
- The environmental scan identified a number of guidance documents describing risk levels for various sporting activities. Risk categorization is dependent on a number of factors including: whether the sport takes place indoors or outdoors, the level of contact between individuals (including how long athletes are in contact with each other), whether the sport allows for physical distancing, if players share equipment, the number of players on the team, whether the team/group travels (e.g., including carpooling, meals), if masks are worn, the vaccination status of participants (including eligibility) and the level of Coronavirus Disease 2019 (COVID-19) transmission in the community. To mitigate risk, a layered approach of prevention measures is recommended by some jurisdictions.
- When developing public health measures for youth sports activities, it is important to consider the context in which the activity occurs, including the rate of transmission in the community, as well as vaccination status among the individuals participating in the group. It is also important to consider the activities that occur before and after the sporting activity (e.g., after game/event socialization or transit to and from the activity).

## Objectives and Scope

The objective of this scan is to examine guidance for youth (less than 18 years of age) sports (both school-based and extra-curricular sports) during the COVID-19 pandemic, including strategies to mitigate risk. Evidence on the risk of COVID-19 outbreaks or infection associated with youth sports is examined with a focus on high-contact and team sports. High contact sports are defined as “activities/sports where there is physical contact and/or close proximity required between individuals.”<sup>1</sup>

## Background

Regular physical activity is important for healthy growth and development, mental health, bone health and cardiorespiratory fitness of children and youth. Lack of physical activity in children and youth was an increasing concern, and has been exacerbated due to the COVID-19 pandemic.<sup>2</sup> A Canadian study

conducted in early 2020, indicated that less than 5% of children and youth met the recommended guidelines for physical activity during the first month of the pandemic.<sup>3</sup> The indirect effects of the COVID-19 pandemic pose a risk to the physical, social and mental health of youth.<sup>4</sup> Efforts to mitigate the unintended impacts on youth health caused by the pandemic and pandemic public health measures can include a safe return to sports and recreational activities.<sup>5</sup>

From January 15, 2020 to June 30, 2021, 12.9% (70,187 cases) of the total of 545,398 confirmed COVID-19 cases in Ontario were reported in children; children account for 18.7% of the Ontario population. In Ontario, the rate of confirmed infection among children is approximately 1.6 times lower (2,523.7 per 100,000) than adults (3,932.0 per 100,000).<sup>6</sup> Children (i.e., ages 0-17 years) accounted for 23% of the total confirmed COVID-19 cases (9,700/42,247) in Ontario from July 4, 2021 to October 2, 2021.<sup>7</sup> From September 19 to October 2, 2021, a total of 134 school-associated outbreaks were reported compared to 76 outbreaks the previous two weeks (September 5 to 18, 2021). The total number of cases associated with school outbreaks was 476, including students and staff. At the time of writing this document, Public Health Ontario (PHO) does not report on sport-related COVID-19 cases or outbreaks.

According to Canadian data (as of August 29, 2021), the overall proportion of children with SARS-CoV-2 infection who required hospital admission is low (0.5%); however, severe illness was common among children admitted to hospital.<sup>8</sup> In Ontario, the proportion of severe outcomes, including hospitalizations, intensive care unit (ICU) admission, deaths and complications are lower among cases in children compared to adults. In Ontario, two deaths have been reported in children as of June 30, 2021.<sup>6</sup>

In the context of increasing vaccination coverage and the Delta variant's prevalence, alongside reopening and loosening of public health measures in many community settings, it is important to examine guidance for youth sports that considers this context. Individuals under the age of 12 are still not eligible for COVID-19 vaccination in Canada. As of October 3, 2021, 85.3% of individuals age 12-17 in Ontario had received one dose of the COVID-19 vaccine and 77.6% of 12-17 year olds are fully vaccinated in Ontario.<sup>9</sup>

In Ontario, high and low contact activities are permitted outdoors without masking, and permitted indoors, where mask use is encouraged when they can be worn safely.<sup>10</sup> Children who are 11 years of age and younger and unable to be vaccinated will be exempted from Ontario's proof of vaccination policy requirements. The province's proof-of-vaccination policy, which covers gyms and other indoor facilities, exempts individuals under the age 18 who are entering fitness facilities to participate in organized sports. According to reporting on October 6, 2021, select health units in Ontario (Windsor-Essex, York Region, Huron Perth, Middlesex-London, Southwestern) are revoking this exemption and are requiring proof of COVID-19 vaccination for all youth sport participation (for ages 12 and up).<sup>11</sup> Youth sports associations in Ontario have announced that they will require athletes who are currently eligible for COVID-19 vaccination to present proof of COVID-19 vaccination in order to register and participate.<sup>12</sup>

## Methods

### Evidence review methods

PHO Library Services conducted searches on September 24, 2021 for peer-reviewed and pre-print literature on the risk of SARS-CoV-2 transmission posed by youth sports and potential mitigation strategies, published from 2020 onwards in MEDLINE and the National Institutes of Health (NIH) COVID-19 Portfolio (preprints). The full strategy is available upon request. We included English language studies that provide evidence related to the risk of COVID-19 and reports of COVID-19 outbreaks associated with team-based and/or high-contact team sports for youth ages 18 and under.

## Environmental scan methods

A review of government and health-related organization websites (specifically national, state and provincial level) was conducted to identify guidance for youth sports during the COVID-19 pandemic in select North American and European jurisdictions. Education and school guidance as well as guidance at the local health unit level was excluded. To reflect guidance specific to the period in which the Delta variant was prominent, only guidance published from May 2021 onwards was included. General guidance related to sport and recreation that was not specific to youth (or applicable to both youth and adults) was also included.

## Evidence Review Results

Summaries of the individual articles identified through this evidence review are available upon request.

### COVID-19 Outbreaks Associated with Youth Sports

Studies examined COVID-19 outbreaks associated with a gymnastics facility<sup>13</sup> and high school water polo<sup>14</sup> in the US during a period of Delta's circulation. An investigation into a gymnastics facility outbreak found 47 cases linked to the facility, including 21 lab-confirmed Delta cases and 26 epidemiologically-linked cases. The household attack rate was 53% and the facility attack rate was 20%.<sup>13</sup> An investigation into COVID-19 cases across 54 high school water polo teams in the US found very low transmission during water polo activities, as only 1.3% (3/232) of athletes who quarantined for water polo-related exposure developed COVID-19.<sup>14</sup>

Other studies pre-Delta, pre-vaccination documented COVID-19 outbreaks associated with youth ice hockey,<sup>15</sup> soccer,<sup>16,17</sup> volleyball,<sup>16</sup> and various high school sports including football and wrestling.<sup>18-20</sup> Some studies that examined COVID-19 cases among youth athletes in the US found that cases identified among athletes were more likely to be attributed to contacts outside of sport, with only a small number of confirmed cases reportedly due to transmission during sport activities. For example, studies examined cases attributed to sport contacts in youth soccer (1% of cases attributed to sport contact), youth volleyball (11% of cases attributed to sport contact), high school sports in Wisconsin (0.5% of cases attributed to sport contact) and ice hockey (no within-sport transmission after enhanced prevention protocols were introduced).<sup>15,16,18,19</sup>

One study examined COVID-19 transmission in a Virginia youth ice hockey association before and after enhanced prevention protocols were in place. These protocols include masking for coaches, no access to locker rooms, measures to decrease potential for mixing between teams, and others described in Appendix A. After enhanced protocols were introduced in January 2021, there was no within-sport transmission.<sup>15</sup>

A study summarizing an outbreak within a high school football team in Florida found that transmission was not related to game-play and was instead related to infrequent mask use in the weight room or during practice, buses transporting players with no distancing or ventilation, infrequent cleaning and disinfection of communal areas and insufficient sanitizing of shared hydration system drinking nozzles between uses.<sup>18</sup>

### Mitigation Strategies

Utah's "Test-to-Play" program mandates rapid antigen testing every 14 days for high school students to participate in extra-curricular activities, including indoor clubs and sports. From November 30, 2020 to March 20, 2021, this program allowed 95% of extra-curricular activities to continue through the winter

period of high community prevalence.<sup>21</sup> The Utah Department of Health provided the tests and on-site technical assistance, while the schools are responsible for registration, reporting and determining when and how to offer the testing to participants of extracurricular activities.<sup>22</sup>

Two national survey studies from the US reviewed the implementation of risk reduction strategies in youth soccer clubs,<sup>17</sup> and in both youth soccer and volleyball clubs.<sup>16</sup> Both studies found that all surveyed youth sport associations reported implementing risk reduction procedures for both players and staff.

## Environmental Scan

The following section describes measures reported in sport guidance documents from various organizations and jurisdictions to prevent the spread of COVID-19 during sporting activities. Detailed guidance for each jurisdiction is available upon request.

## Summary of Guidance

### LEVEL OF RISK

Activities for youth sports exist on a continuum ranging from lower risk to higher risk of COVID-19 transmission.<sup>23</sup> Some guidance documents assign different levels of risk for various activities. Risk is dependent on a number of factors including: whether the sport allows for physical distancing, if players share equipment, the level of contact between individuals<sup>24,25</sup> (including how long athletes are in contact with each other), if the sport takes place indoors or outdoors, the number of players on the team, whether the team/group travels, if masks are worn and the level of COVID-19 transmission in the community.<sup>26</sup>

To mitigate risk, a layered approach involving a number of prevention strategies to reduce the risk of COVID-19 spread is recommended, including decreasing the number of interactions with others and increasing the safety of interactions.<sup>27,28</sup>

### VACCINATION

Vaccination of eligible individuals was encouraged in a number of jurisdictions.<sup>24,25,27</sup> Additional preventive measures (e.g., masks, distancing) should be used if not all participants are vaccinated.<sup>24,25</sup> In one jurisdiction, a Health Pass (indicating vaccination, a recent negative COVID-19 test, or proof of past infection) is required for recreational and competitive sports in indoor and outdoor public settings (school sports exempt).<sup>29</sup>

### SCREENING

Screening for symptoms of COVID-19 using temperature checks and/or questionnaires prior to attending youth sports activities has been recommended.<sup>24,25,30</sup> Individuals showing symptoms should be isolated and dismissed from the activity.<sup>24,25</sup>

### CAPACITY LIMITS

Guidance from many jurisdictions did not specify capacity limits or the number of individuals that could participate in a sporting activity.<sup>29,31-33</sup> Others recommend that capacity limits be chosen based on the ability to allow individuals to remain at least six feet apart from each other,<sup>33</sup> and that they be set in accordance with transmission level and re-opening stage.<sup>34,35</sup> Others have set specific capacity limits

such as limiting indoor facilities and outdoor facilities to no more than 50% of the facility's maximum permitted occupancy up to a maximum capacity of 500.<sup>36</sup>

## COHORTS

The use of small groups or cohorts has been recommended by guidance documents from many jurisdictions.<sup>1,28,30,36-41</sup> This can assist with limiting exposure preventing widespread outbreaks and allow for easier contact tracing should a team member test positive.<sup>37,41</sup> When possible, coaches, players, volunteers and others should avoid mixing between group/cohorts.<sup>30</sup> Masking and physical distancing should be used as much as possible when different cohorts interact in shared indoor spaces such as change rooms.<sup>1,38-40</sup> One jurisdiction recommended that for children ages 0 to 11 cohorts should include no more than 50 individuals; children should participate in only one cohort at a time; and children should wait seven days following participation in a cohort before switching to a new cohort.<sup>32</sup> Other jurisdictions have noted that there is no maximum group size for both indoor or outdoor sports.<sup>42</sup>

## VENTILATION

Use of athletic areas with poor ventilation (e.g., weight rooms) should be limited. When possible, hold youth sports activities outdoors where the risk of COVID-19 transmission is much lower.<sup>24,25</sup> Ventilation can be improved by opening doors and windows, where feasible using child-safe fans, making changes to the heating, ventilation, and air conditioning (HVAC) or air filtration systems can be used as well to increase ventilation.<sup>1,24,25,27,30,33,37-40,43</sup> If portable ventilation equipment (e.g., fans) are used, it is important to ensure that air is not blown directly onto individuals.<sup>33,44</sup> Carbon dioxide (CO<sub>2</sub>) measurements have been used as a broad guide to monitoring ventilation within a space.<sup>43</sup>

## MASKS

Nearly all guidance documents reviewed provide guidance regarding mask-wearing. In general, many suggest that masks be worn as much as possible for indoor activities,<sup>1,2,24,25,27,38-41,45,46</sup> but are not required for outdoor activities<sup>1,2,27,30,32,38-40,42</sup> (exceptions include when physical distancing cannot be maintained such as in high contact or crowded activities).<sup>2,24,25,27,33,35,46</sup> Others suggest that masks are not required in indoor settings<sup>42</sup> with some exceptions (e.g., dependent on vaccination status,<sup>42</sup> whether physical distancing cannot be maintained,<sup>2,28</sup> or if the individual is sitting on the bench vs. being active<sup>30</sup>). Masks are not recommended for aquatic activities,<sup>24,25,32,36,45</sup> or gymnastics/cheer/tumbling and wrestling (as they can get caught on equipment) and when there is increased risk of heat-related illness.<sup>45</sup>

Coaches and trainers must wear masks indoors (and are encouraged outdoors), except when engaging in physical activity.<sup>32</sup> Masks should be worn by all spectators and chaperones, coaches, staff, referees, parents, umpires, and other officials,<sup>24,25,33,36</sup> particularly when indoors (some exceptions if fully vaccinated,<sup>46</sup> or when eating/drinking (for spectators)).<sup>24,25</sup>

Some mask guidance is based on vaccination status. Organizations may consider mask recommendations when vaccine uptake is low or unknown, or when the vaccine is not yet available for that age group.<sup>41</sup> Mask requirements may also be dependent on the COVID-19 transmission level in each region.<sup>31,44</sup>

Overall, masks were encouraged when physical distancing could not be maintained, in areas of high COVID-19 transmission or where there is increased risk such as crowded settings, close contact with others who may not be vaccinated or whose vaccine status is unknown, and if the individual or household member is immunocompromised or at increased risk for severe disease.<sup>30</sup>

## TRAVEL

Guidance from many jurisdictions have suggested limiting or minimizing travel to other regions or communities or regions for sporting activities,<sup>35,37,47</sup> including limiting overnight stays.<sup>41</sup> If travel is required, it is recommended to avoid travelling with individuals from different households;<sup>24,25,47</sup> when this is not possible, masks should be worn<sup>24,25</sup> and windows should be opened where feasible to increase ventilation.<sup>1,24,25,38-40</sup> Students who live in the same household or same classroom should be seated together and assigned seating should be used if possible to assist with contact tracing (if needed).<sup>1,38-40</sup> The level of COVID-19 transmission in the region should be also considered when travelling.<sup>41</sup> For overnight trips, it is recommended that team members not from the same household sleep in separate rooms and keep masks on whenever visiting other members' hotel rooms. Socializing with other teams is strongly discouraged.<sup>24,25</sup>

## TESTING

Testing of unvaccinated individuals (including athletes, coaches, and officials) 48 to 72 hours before participating in sports programs or activities has been described.<sup>41</sup> Routine antigen testing has been described for use at times of high community transmission and prior to inter-team competitions.<sup>24,25</sup>

## PHYSICAL DISTANCING

Nearly all guidance documents reviewed recommended some sort of physical distancing among all participants (e.g., athletes, coaches, spectators) at sporting events/activities including on the field, in locker rooms, restrooms and spectator viewing areas, particularly when not all individuals are fully vaccinated.<sup>30</sup> Some suggested modifying activities to prioritize non-contact activities where distancing can be maintained such as conditioning and drills,<sup>24,25,28,33,37</sup> increase the size of the field/court where possible (e.g., moving to a larger outdoor space),<sup>33,36</sup> use signs and markings on the ground/walls to provide distancing guides,<sup>1,28,33,38-40,44</sup> discourage unnecessary physical contact (e.g., high fives, handshakes, fist bumps),<sup>33,35,44,45</sup> stagger practices/games to avoid overlap in change rooms,<sup>1,30,33,36,38-40</sup> restrict capacity in restrooms/change rooms, or modifying activities to reduce contact risk (e.g. no contact rules).<sup>28</sup> A one-way traffic system can also be used to ensure that individuals do not cross paths.<sup>44</sup> Youth sports programs may use parents to monitor their children to encourage distancing (e.g., younger children could sit with parents or caregivers instead of in a dugout or group area).<sup>28,33</sup> Physical distancing between staff and students/youth and between students/youth should be promoted as much as possible.<sup>1,32,38-40</sup> Trainers and coaches should wear masks and stay at least six feet away from players and others; when not possible (e.g., spotting), programs are encouraged to assign each coach/trainer a small group, or cohort, of athletes and maintain this small group throughout the session/season.<sup>33</sup>

Some guidance suggests physical distancing of one metre apart at all times.<sup>44</sup> Others suggest distancing of two metres,<sup>28,35</sup> or six feet when not playing (particularly in indoor settings).<sup>41</sup> Other guidance notes that no physical distancing is required indoors or outdoors, on or off the field,<sup>42</sup> but instead, encourage 'giving people space'.<sup>43</sup> Others suggest that physical distancing is not required during game play or in sport practice, but two metres distancing is required indoors at all times when not actively participating in the sport.<sup>32</sup>

## SHARED EQUIPMENT

Guidance from many jurisdictions noted that sharing of sports equipment should be minimized where possible; participants should bring their own equipment and materials, where feasible.<sup>28,30,32,34,44,45</sup> Activities can be modified to reduce the sharing of equipment.<sup>36</sup> One guidance document noted that personal equipment should be stored six to eight feet away from other teammates' equipment.<sup>45</sup> Others

noted that sharing of sports equipment is permitted; however, hand-washing or the use of hand sanitizer should occur before, during, and after use of any shared equipment.<sup>1,27,32,38-40</sup>

## SANITIZATION

Guidance from many jurisdictions recommend cleaning and disinfecting any commonly touched surfaces (e.g., handles, benches) as well as shared equipment/materials (e.g., balls) between uses, or between practices.<sup>28,30,32-34,36,43</sup> Adequate time should be scheduled between training sessions or matches for full disinfection when required, depending on the type of physical or sports activity.<sup>44</sup> The frequency of cleaning/disinfecting varied across guidance documents. Some recommended cleaning and disinfecting at least twice a day,<sup>1,38-40</sup> others suggest that cleaning and disinfection between every use of sports/physical education or playground equipment is not needed, but instead encouraged cleaning and disinfecting high-touch surfaces and objects.<sup>33</sup> Others noted that frequently touched surfaces should be disinfected between use as much as possible (at least daily),<sup>37</sup> and that personal sports equipment and water bottles should be cleaned each practice or game.<sup>45</sup>

## HAND HYGIENE

Guidance from many jurisdictions encourage hand washing to take place before and after use of any equipment, as well as after before or after sporting activities.<sup>1,27,28,30,32,36,38-40,45</sup> Facilities should provide access to hand washing stations or hand sanitizer stations at entrances and exits, common areas, registration desks and in washroom facilities,<sup>24,25,28,35,36,43,44</sup> and ensure accessibility for participants with disabilities or other accommodation needs.<sup>28</sup>

# Discussion and Conclusion

## Evidence Review

The evidence reviewed identified peer-reviewed and pre-print literature detailing COVID-19 outbreaks associated with youth sports in the US. A majority of the studies summarized in this document examine youth sports that restarted in fall 2020 in the pre-Delta, pre-vaccination period, with only two studies examining youth sports in the Delta context. Evidence on the risk and prevalence of SARS-CoV-2 transmission during sport activities or between athletes varied by sport. Some studies found that the risk of COVID-19 transmission among youth athletes was associated with community incidence rates (periods of high community incidence coinciding with periods of increased COVID-19 cases among youth athletes).<sup>16,19,20</sup>

Several risk reduction strategies were reported across the literature including mask-wearing, symptom screening and testing requirements in order to participate in sports (known in some jurisdictions as “Test-to-Play”). Evidence on youth ice hockey in Virginia found that mitigation strategies such as enhanced physical distancing, increased mask-wearing, and decreased use of communal spaces decreased within-sport transmission. Evidence on mandatory testing every 14 days to participate in extra-curricular activities in Utah, as part of multiple mitigation measures, allowed schools to continue youth sports during a time of high community transmission.<sup>21</sup> More frequent rapid antigen testing would likely identify more infectious cases thereby further limiting transmission during sports.

The Test-to-Play strategy is distinct from ongoing asymptomatic screen testing which could be based on a community- or school-based threshold, where testing is voluntary and without consequences at the individual or school level for not participating. There are important logistic, cost and equity considerations with asymptomatic screen testing programs such as “Test-to-Play”, and it is essential that

community supports are in place to communicate program goals and manage positive results.<sup>48</sup> These considerations also vary depending on whether antigen or PCR testing is used.

## Environmental Scan

The environmental scan identified a number of guidance documents describing levels of risk for various sporting activities. Risk characterization is dependent on a number of factors including: whether the sport allows for physical distancing,<sup>26</sup> if players share equipment,<sup>26</sup> the level of contact between individuals<sup>24,25</sup> (including how long athletes are in contact with each other<sup>26</sup>), whether the sport takes place indoors or outdoors,<sup>26</sup> the number of players on the team,<sup>26</sup> whether the team/group travels,<sup>26</sup> if masks are worn,<sup>26</sup> the level of COVID-19 transmission in the community, and vaccination levels among the individuals participating.

To mitigate risk, a layered approach involving a number of prevention strategies to reduce the risk of COVID-19 spread is recommended. Prevention strategies will vary by sport but can include: physical distancing, masks, minimizing shared equipment, cleaning and disinfection of frequently touched surfaces/equipment, hand hygiene, capacity limits, cohorts, improving ventilation, minimizing travel, screening for COVID-19 symptoms, symptom screening and testing in order to participate (known as “Test-to-Play”), and supporting getting vaccinated. There is not one combination of mitigation measures which will eliminate all risk, however the use of multiple activity-appropriate measures can facilitate youth sports irrespective of the perceived baseline transmission risk.

It is also important to consider the activities that occur before and after the sporting activity (e.g., after came socialization or transit to and from the activity) as they can be a significant source of risk and transmission as well. There was limited peer-reviewed evidence comparing the potential role of activities associated sports and the within-sport activities themselves.

## Limitations

- Most of the peer-reviewed and pre-print literature about sport-associated SARS-CoV-2 transmission are from before the Delta variant emerged and before vaccine programs were rolled out. These variables have impacted the transmissibility of SARS-CoV-2 and disease severity.
- Not all guidance documents summarized in the environmental scan were specific to youth. Some provided guidance about sport-related activities in general and some included content specific to both youth and adults.
- The search for the environmental scan did not include school-specific guidance (e.g., guidance from local school boards) as well as guidance at the public health agency level. Only higher level (i.e., national, state/provincial) guidance was used.

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