

Return to sport for North American professional sport leagues in the context of COVID-19

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ABSTRACT

COVID-19 is a respiratory illness that can spread from person to person. A range of clinical scenarios exist, from an asymptomatic disease course to SARS and death. This document describes important considerations for 5 North American professional sports leagues (Major League Baseball, Major League Soccer, National Basketball Association, National Football League and National Hockey league) assessing when and how to resume phased operations, including practices and games. Sports should prioritise and promote the health and safety of athletes, team and operational staff, and other participants, and should not unduly increase those individuals' relative health risk while contributing to economic recovery, providing entertainment for the public and leading a responsible restoration of civic life. Because elite professional sport ordinarily is conducted in a controlled environment, professional sports leagues may be able to achieve these goals. This document is focused on professional sports leagues in North America, and although many of the statements are generalisable to professional sporting settings throughout the world, other considerations may apply to sports in other countries.

PURPOSE

COVID-19 is a respiratory illness that can spread from person to person. It spreads mainly between people who are in close contact with one another (operational definition of less than 6 ft for 15 min or more)¹ through respiratory droplets produced when an infected person coughs, sneezes or talks. Symptoms can include fever, cough, shortness of breath, sore throat, headache, muscle pain, chills, chest pain, fatigue, and new loss of smell or taste, which, if they appear, typically begin 2–14 days after exposure, but typically at 5–6 days. Asymptomatic and presymptomatic sheddings of SARS-CoV-2 have been reported and resulted in transmission to others. A range of clinical scenarios exist, from an asymptomatic disease course to SARS, with potentially fatal outcome. COVID-19 affects people of all ages, but certain factors are associated with higher risk of severe illness, such as individuals who are over age 60 years who have an immune compromising condition or treatment regimen, or certain underlying medical conditions, particularly if not well controlled.²

This document describes important considerations for North American professional sports leagues assessing whether and how to resume phased operations, including practices and games. Sports should prioritise and promote the health and

safety of athletes, team and operational staff, and other participants, and not unduly increase those individuals' relative health risk while contributing to economic recovery, providing entertainment for the public and leading a responsible restoration of civic life. Because elite professional sport ordinarily is conducted in a controlled environment, professional sports leagues ('sports') may be able to achieve these goals. This document is focused on professional sports leagues in North America, and although many of the statements are generalisable to professional sporting settings throughout the world, other considerations may apply to sports in other countries.

Please be advised that this document focuses on 'phased-in-play' (ie, the resumption of sporting events without spectators present) and should be consistent with Health Canada's and the Centers for Disease Control and Prevention (CDC) considerations for events and gatherings. Certain considerations relevant to the resumption of phased-in-play are beyond the scope of this document, including preparticipation clearance for athletes (eg, cardiac screening; cf Phelan *et al* and Bhatia *et al*^{3,4}) and the utility of antibody testing for COVID-19.⁵ This document also does not address planning considerations for resuming sporting events with spectators. The COVID-19 pandemic continues to evolve and new scientific evidence is still coming to light. As such, the recommendations set forth in this document may require revision as new medical and scientific knowledge develops.

APPROPRIATE LOCATIONS FOR RESUMING PHASED-IN-PLAY

Subject to their respective jurisdictions, state and local officials will determine whether the resumption of sporting events in their state or region poses an unreasonable risk to the individuals involved in staging the events or to the local community. Sports should consult with these officials regarding such determinations, giving particular consideration to whether the state or region has satisfied the 'phase 1' gating criteria set forth in the White House Guidelines for Opening America Again and tailoring the application of these criteria to local circumstances as warranted.

Considerations for resuming phased-in-play

In the absent an effective vaccine, treatment, established correlates of immunity or a relatively sealed-off environment, in order to resume sporting events in appropriate states and regions and to manage relative health risks and protect participants, sports should review the considerations set forth as follows.



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Table 1 Example of exposure-based tiers

Exposure-based tiers	Conditions and characteristics	Examples of relevant individuals
1. Highest exposure.	Individuals for whom physical distancing and face coverings are not possible or effective during athletic training or competition	<ul style="list-style-type: none"> ▶ Athletes. ▶ Coaches. ▶ Training/PT staff. ▶ Medical staff. ▶ Equipment staff. ▶ Officials.
2. Moderate exposure.	Individuals who come into close contact with tier 1 individuals but can reasonably maintain physical distance and use face coverings	<ul style="list-style-type: none"> ▶ Certain team staff (eg, executives). ▶ Certain operational staff (eg, security, event staff and league staff).
3. Lowest exposure.	Individuals who provide event services but do not come into close contact with tier 1 individuals (and should this occur, will be reclassified into tier 2)	<ul style="list-style-type: none"> ▶ Certain operational staff (eg, housekeeping, catering, sanitation and transportation). ▶ Media/broadcast.

PT, physical therapy.

At all times

Health planning

Maintain exposure-based groupings

Create and maintain risk of exposure-based categories encompassing each set of individuals necessary to operate, facilitate and participate in the event. Once categorised (see [table 1](#)), implement protocols tailored to the relative risks associated with each group of individuals. This risk-based approach (as reflected by the aforementioned groupings, which should be modified as necessary to reflect the conditions of each particular sport), is intended to limit, as much as possible, the possibility of infection and/or the subsequent spread of the virus, among essential participants (eg, athletes).

Maintain physical distancing protocols

Maintain strict physical distancing protocols that are tailored to the location, size, type of sport, type of venue (eg, indoor or outdoor⁶) and each exposure-based tier. Recognising that strict physical distancing is not possible within the context of professional team sports, an enhanced testing programme is needed to regularly test at least tier 1 individuals (and, depending on the event, tier 2 individuals).

Tier 1: For such individuals at highest exposure risk, in conjunction with enhanced testing, sports can further reduce risks of infection and transmission through protocols that promote distancing when tier 1 individuals are not engaged in athletic competition. Sports should

- ▶ Consider making available private or less crowded transportation when tier 1 individuals are travelling individually or as a group so that they can minimise time in travel settings (<6 ft apart) and maintain distance from other people.
- ▶ Outside of athletic competition, establish certain limits on interactions between unaffiliated tier 1 individuals (eg, for athletes on different teams, limiting extended close contact and segmenting accommodations and services; for officials, where possible, maintaining crews throughout a sporting event).

▶ Require each tier 1 individual to maintain as much distance as possible from tier 2 individuals (eg, by providing separate accommodations, limiting access to or time spent in locker rooms by tier 2 personnel).

▶ Designate separate entrances, exits and group spaces for tier 1 individuals. (If separate entrances and exits are not available, schedule times when the single entrance will be used only by individuals in each particular tier, respectively, with physical distancing guidelines used, and establishing a cleaning and disinfecting protocol between each such time.)

Tier 2: Instruct such individuals to maintain as much distance as possible from other individuals involved in the event (including others in the same tier), recognising that it may not be possible to maintain distance during, for example, medical appointments or security checkpoints.

Tier 3: Direct such individuals to avoid any direct or close contact with tier 1 individuals or touching surfaces or objects that tier 1 personnel are likely to touch during the event (such as by providing services before or after the highest-risk individuals are present). Sports should further consider processes that ensure tier 3 individuals do not have any close contact with tier 2 personnel, who in turn will need to interact with those in tier 1.

Require use of personal protective equipment in appropriate settings

Tier 1: Require those at highest risk of exposure to wear face masks or face coverings⁷⁻⁹ outside of athletic competition and when physical distancing is not possible (eg, except when actively eating or drinking or outdoors at sufficient distance from other individuals). Non-athletes in tier 1 must take such precautions whenever possible and especially when physical distancing is not practical (eg, when providing medical care to athletes).

Tiers 2 and 3: Require these individuals to wear face masks or face coverings as appropriate while at event facilities or while travelling. In particular, individuals in tier 2 must take such precautions whenever interacting with tier 1 individuals (eg, when providing security services or administering the event).

In consultation with medical advisors, implement an enhanced testing programme

Provide for regular testing for COVID-19 (including reverse transcription polymerase chain reaction (RT-PCR) testing) using validated testing methods with high-performance metrics and expedited turnaround times.^{10 11} Testing should include asymptomatic individuals, as well as at least individuals in tiers 1 and 2 prior to the resumption of play. Testing frequency should be determined not only with the goal of COVID-19 detection early in the course of a person's illness but also to facilitate a sport's efforts to detect cases and to minimise potential spread of the virus to other participants.

Monitor local conditions

Stay up to date on local COVID-19 activity by monitoring public reports, including from the CDC and Health Canada, and consulting with local health officials. Plan to respond rapidly to varying levels of disease transmission in the community and to refine plans as needed, including by scaling mitigation measures up or down as appropriate.

Sport participants

Communicate with participants

Create and follow a plan to communicate regularly with all individuals involved in the sport regarding the protocols in this document and preventive measures for reducing risks related to COVID-19 infection. Recommend that, other than time spent at the event or

participating in related activities (eg, travel and practices), all individuals remain at home (or at their designated domicile, eg, hotel room), follow general hygiene practices¹² (eg, washing hands; covering coughs and sneezes; and avoiding touching eyes, face and nose), clean and disinfect objects frequently¹³ and physically distance from others as much as possible.

Provide prevention supplies

Ensure that participants have access to sufficient prevention supplies, including alcohol-based hand sanitisers, tissues, face masks or face coverings and disinfectant wipes.

Promote the daily practice of everyday preventive actions

Use repeated health messaging and public health materials to encourage all individuals involved in the sporting event to practice good personal health habits; remain alert for COVID-19 symptoms; and engage in everyday preventive actions to help prevent the spread of COVID-19, which include

- ▶ Staying at home when you or someone in your home is sick,¹⁴ except to get medical care (and if leaving the home is necessary, wear a face mask or face covering).
- ▶ Covering coughs and sneezes with a tissue, then throwing the tissue in the trash, then cleaning the hands. If a tissue is not available, cough or sneeze into the elbow, not in the hands.¹⁵
- ▶ Washing hands often with soap and water for at least 20 s; if soap and water are not available, use an alcohol-based hand sanitiser containing $\geq 70\%$ alcohol.
- ▶ Cleaning hands before eating.
- ▶ Avoiding touching the eyes, nose and mouth.
- ▶ Consuming individual food and beverages and not sharing with others (eg, cups and water bottles).
- ▶ If experiencing COVID-19 symptoms, immediately relocating to a designated area or leaving the venue, and seeking medical care (calling ahead for consultation rather than showing up in person at the site of medical care).

Sport facilities

Clean and disinfect facilities

Enact appropriate cleaning and disinfecting processes, and apply the enhanced cleaning, disinfecting and ventilation recommendations set forth as follows, as indicated based on the type of sport and venue¹⁶:

- ▶ Regularly monitor and adhere to the CDC's and Health Canada's reopening guidance for cleaning and disinfecting public spaces, including tailoring such guidance to sport facilities as indicated, and frequently disinfect high-traffic areas before, throughout and after a sporting event (and ideally several times per day), including door handles, door knobs, push bars, handrails, elevator buttons, escalators, tables, counters and rest rooms (including sinks, stalls and toilet seat covers and flushers) with disinfectants approved by the EPA for use against COVID-19.
- ▶ Properly and thoroughly disinfect game, training, locker room, and medical equipment and surfaces (including after each individual use, training session or game).
- ▶ During games, clean and disinfect between segments of play any areas where tier 1 participants have vacated and will return (eg, clean and disinfect bench during halftime or intermission).
- ▶ Undertake efforts to increase ventilation and airflow throughout event facilities (eg, increase the percentage of outdoor air that circulates into the system; regularly open doors and windows as much as is practicable and safe), for both indoor and outdoor sporting events.

Before a sporting event

Health planning

Establish relationships with key community partners and stakeholders

Engage relevant partners such as local public health officials, vendors, suppliers, hospitals, hotels, transportation companies and others, including to assess the benefits of resuming play in that community and coordinate on broader planning efforts to identify roles and responsibilities. Review any emergency action plans and incorporate COVID-19-specific practices (eg, communication, security and protocols if an individual falls ill at the sporting event).

Assess local healthcare capacity

In coordination with local officials and healthcare providers, ensure that the community in which the event is held has capacity in all relevant respects, including hospital beds, staffing, personal protective equipment and critical medical equipment, to handle current COVID-19 cases and to react to any potential increase in cases related to the contemplated sporting event.

Consult with public health and infectious disease specialists

Communicate with public health and infectious disease specialists about coordinating medical evaluation and caring for clinically suspected (eg, individual with symptoms associated with COVID-19) and confirmed COVID-19 cases, as well as regarding community-specific issues that should be considered.

Sport participants

Significantly reduce the number of attendees relative to who would ordinarily attend

Reduce the number of people needed to participate in and operate the sporting event, including by

- ▶ Setting limits on essential personnel who can attend the event.
- ▶ Prioritising staff members who can fill multiple roles.
- ▶ Supporting the event through teleworking and offering staff the option to telework if they can perform their duties by phone or video conferencing.
- ▶ Downsizing or eliminating traditional services if possible.
- ▶ Encouraging essential personnel to self-identify if they, pursuant to CDC guidance, at higher risk for severe illness (such as individuals who have an immune compromising condition or treatment regimen, or certain underlying medical conditions, particularly if not well controlled),^{2,17} so that workplace accommodations can be considered to address such risk where possible.

Establish protocols for pre-event screening

In order to reduce the risk that individuals who are infected will arrive at the sporting event or the resumption of league play and potentially infect other individuals, prepare written protocols for screening individuals when or before they arrive. Subject to the advice of medical advisors, and state and local health officials, if necessary, such protocols should include intake testing for COVID-19, temperature checks and symptom questionnaires (prior to arrival and on-site), and/or a period of quarantine or physical distancing prior to the event.

Administer educational/training sessions

Communicate clearly with participants regarding recommended practices for reducing the risk of infection, best practices for use/removal of face coverings and event conditions and expectations. Topics covered in each session should vary according

to participants' risk-based classification and expected role at the sporting event (eg, training for tier 1 individuals should focus on in-event behaviours (eg, high fives, handshakes, face touching, spitting and touching mouthguards). Develop educational materials for participants' household and family members to emphasise how they may support efforts by participants to engage in preventive behaviour.

Offer athletes and team staff access to the influenza vaccine

In order to reduce the frequency of participants with symptoms that may be confused for COVID-19, and to the extent appropriate for the time of year and the location in which the event is held, suggest that teams offer all members of their travelling party the influenza vaccine in order to mitigate significant health risks associated with influenza.

Plan for unexpected staff absences

Identify critical job functions and plan ahead for alternative coverage by cross-training staff.

Plan for responses after COVID-19 infection

Understand that the diagnosis of COVID-19 infection can be associated with a variety of emotional responses.¹⁸

Sport facilities

Repurpose facilities and accommodation spaces and establish a controlled environment

- ▶ Redirect the flow and density of foot traffic within facilities (eg, through visual markers such as arrows or lanes of travel) to increase the size of the spaces in which participants will gather.
- ▶ Install $\geq 70\%$ alcohol-based hand sanitiser stations, disinfectant wipe containers, tissue/Kleenex stations and refuse receptacles (no-touch if available) throughout facilities.
- ▶ Update facilities to be as automated or no-touch as practicable to remove or reduce the use of touchpoints (eg, door handles, door knobs, push bars, elevator buttons, light switches, rest room sinks and soap dispensers).
- ▶ Secure facilities and accommodation spaces by physical means or security personnel to reduce exposure from individuals who have not been tested or monitored.
- ▶ Reduce or close the number of non-essential group spaces (eg, break rooms, lounges and kitchen areas) in which individuals can gather. Alternatively, or in addition, limit the number of people who can share the space and/or staggering schedules to avoid crowding.

During a sporting event

Enforce adherence to preventive measures

To promote compliance with event conditions, sports should

- ▶ Display signage in appropriate locations throughout the facility (eg, facility access points, locker rooms, workout, training and treatment spaces, and central meeting areas) outlining advisable precautions and the sport's expectations.
- ▶ Consider enacting a practice to record and/or flag each piece of equipment when it has been cleaned and disinfected.
- ▶ In conjunction with restricting participants from sharing any personal items, label each individual item (eg, bottled beverages, reusable bottles and lids) to avoid inadvertent use by another person.
- ▶ Employ a single-use towel practice (whereby all towels are laundered after each use) and provide bins for used towels.

- ▶ If made available, supplements should be provided in single-use packs. Prohibit anyone from using substances (eg, creams, gels and balms) from a shared container.
- ▶ Require participants to certify that they will adhere to event conditions and best practices for limiting the spread of the coronavirus.
- ▶ Using dedicated personnel, monitor the event and promptly address non-compliance by participants (eg, through removal or other sanctions).
- ▶ Use event broadcasts and public announcements to communicate important risk-reduction reminders.
- ▶ Consider assigning a badge or credential to participants (differentiated by their risk-based tier) that may remind individuals to maintain necessary distance or assist sports in securing spaces intended only for tier 1 or tier 2 individuals.
- ▶ Require each team or facility to designate a 'hygiene officer' or 'health officer' responsible for monitoring basic hygiene measures, coordinating educational sessions, promoting accountability with health and safety protocols, and implementing other processes recommended in this document.

Establish secure processes to record health information to promote athlete health and safety

Monitor athletes' and staff's health through processes that record daily symptom information and temperature checks (such as in connection with entry into an event facility) and appropriate information from athletes regarding household members, close personal exposures, travel itineraries, daily whereabouts and related information. Steps should be taken to ensure that all medical information is stored securely in a manner that will maintain appropriate confidentiality. Such processes should be extended to other tier 1 individuals (eg, coaches or training staff) and, in some cases, tier 2 and 3. Sports should not rely exclusively on such measures, given that asymptomatic and presymptomatic shedding of SARS-CoV-2 has been reported¹⁹ and resulted in transmission to others, and recognised limitations of temperature screening, but may implement such processes as part of a more comprehensive approach to prevent the spread of COVID-19.

Prohibit use of certain equipment or facilities

Prohibit use by more than one individual at a time of cold tubs, hydrotherapy pools, or oxygen or cryotherapy chambers, and provide cleaning/disinfection after each use. Prohibit use of closed spaces such as steam rooms and dry saunas.

Limit shared materials

Even for sports where physical contact is rare and distancing generally is feasible, reduce common materials and objects that could transmit the disease. Where practicable, require individuals (eg, equipment managers) to handle such materials and objects with appropriate gloves (and additionally require such individuals to clean their hands before donning gloves and after removing them).

Explore alternative ways for fans, media and other observers to experience the sporting event and remotely or virtually interact with tier 1 participants

During phased-in-play, consider alternatives to traditional in-person interactions (eg, pregame and postgame settings, media scrums and press conferences) by facilitating safer remote or virtual interactions (eg, video, social media or web services).

Use a protocol and physical spaces to isolate, test and/or treat (or remove) any participants who become infected or symptomatic

Even following the implementation of suggested preventive measures, it remains possible that one or more participants may become infected by COVID-19 and fall ill. Sports should

- ▶ Designate a COVID-19 response team (eg, medical staff and security) that participants should contact if they experience symptoms associated with COVID-19 or identify anyone else with COVID-19 symptoms.
- ▶ The COVID-19 response team must ensure that the following measures are in place:
 - Exit plan for symptomatic individuals that reduces to the extent possible contact between such individuals and other attendees
 - Processes to secure, clean and decontaminate an infected individual's prior locations (eg, prior living quarters) and provide care that permits the individual to remain in strict isolation as much as possible (eg, medical care and monitoring, and provision of meals).

Availability of face masks or face coverings and other appropriate personal protective equipment for any individual caring for or assisting an infected person. Ability to monitor the infected individual's recovery to ensure he or she does not return to work or competition before a physician determines it would be appropriate.

- ▶ Ability to care for the emotional response to COVID-19 infection.
- ▶ For professional players and referees/officials, clearance to participate should consider cardiac testing, including high-sensitivity troponin, ECG and echocardiogram.^{3 20}
- ▶ Ability to trace contacts and test appropriately in order to mitigate the risk of viral transmission and ensure the sporting event can continue safely without significant interruption.

Use a protocol to guide the continued operation of a sporting event in the event a participant is exposed to COVID-19

Participants who are essential to the operation of a sporting event (ie, tier 1) and are thought by an infectious disease physician to have been exposed to a confirmed or clinically suspected case of COVID-19 can be permitted to continue to participate in the event without a required quarantine if the participant meets all of the following conditions:

- ▶ Is essential to operating the event. Athletes are considered essential participants.
- ▶ Is asymptomatic.
- ▶ Is immediately tested and returns a negative test result for presence of the virus (eg, by RT-PCR test) prior to re-entering the team environment.
- ▶ Continues to undergo regular testing for COVID-19, at a frequency determined by the sport's medical advisors, and return negative test results for 10 days following his or her potential exposure.
- ▶ Undergoes temperature monitoring and symptom checks for, at minimum, 10 days.
- ▶ Wears a face mask and distances physically at all times outside of athletic competition.
- ▶ On developing any symptoms consistent with COVID-19, immediately ends his or her participation in the sporting event, seeks any necessary medical attention and self-isolates under the direction of a physician until cleared to return.

Sports should consult with their medical advisors, an infectious disease specialist, and applicable local or state authorities regarding the aforementioned protocol to approve the

continued participation of essential asymptomatic individuals in the sporting event.

After a sporting event

Consult with staff, participants, partners, and local and state officials to evaluate the effectiveness of operational and communication plans

- ▶ Gather feedback to guide event planning for the next competition. Sports should seek to understand, for instance, whether (1) event protocols (eg, rules regarding distancing, face coverings or restrictions on personal activity) were clearly communicated and consistently enforced; (2) operational changes (eg, modified meal preparation or event transportation) were effective (and, in each case, how such protocols or operations could be improved).
- ▶ Identify any gaps in the plans and any additional resources that may be needed for the next event.
- ▶ In each case, but particularly if sports plan to return to the same location for a future event, assess adherence by vendors and sport staff to the sport's rules (eg, mandatory distancing from athletes and maintenance of hygiene standards) in order to determine whether the same or new partners should be engaged for the next event.
- ▶ To the extent any participants fell ill due to COVID-19, review on a case-by-case basis the effectiveness of relevant protocols, such as regarding self-isolation of any infected individual and/or continued participation by exposed but asymptomatic athletes.

Future developments

This document will be updated as additional information becomes available.

As stated previously, subsequent protocols will describe planning considerations for resuming sporting events with spectators present.

Correction notice This article has been corrected since it published Online First. The competing interests statement has been corrected.

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