

COVID-19 and Curling

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Disclaimer

- Views and opinions expressed during this presentation do not represent those of the University of Maryland School of Medicine nor those of the Potomac Curling Club.
- Views and opinions expressed during this presentation do not represent those of the Curler Outreach Program, USCA, WCF, and other curling governing bodies

Current COVID-19 Case Status

Adapted from 91-divoc.com



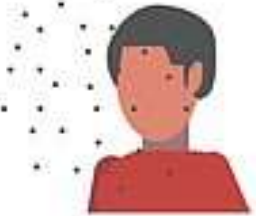










New Confirmed COVID-19 Cases per Day, normalized by population



Data: Johns Hopkins University CSSE / CCI; Updated: 01/24/2021
Interactive Visualization: <https://91-divoc.com/> by @profwade_

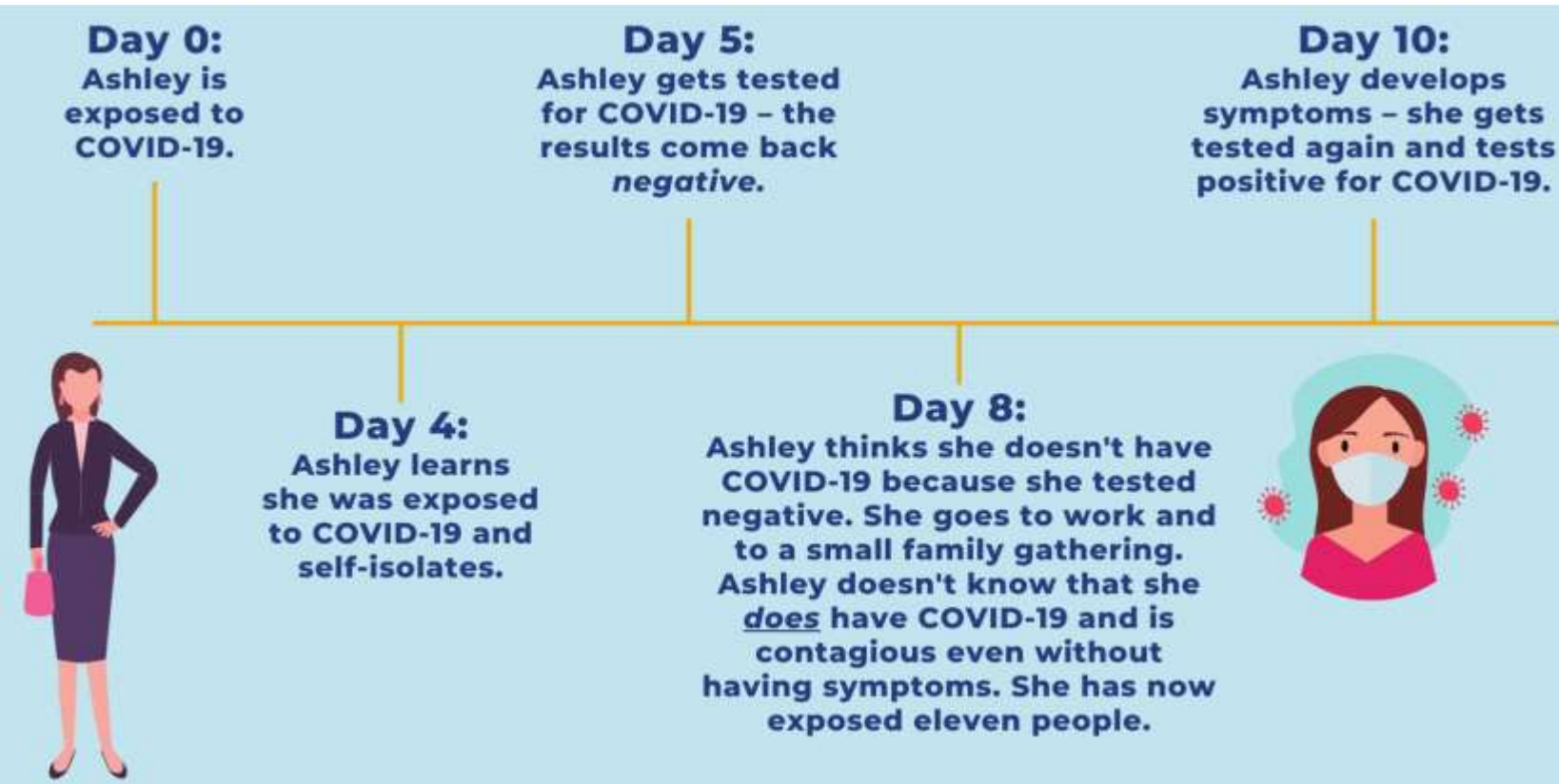
Methods of COVID-19 Transmission

CORONAVIRUS TRANSMISSION

FOMITES	DROPLETS	AEROSOLS
 <p>Fomites are contaminated objects and surfaces that transmit coronavirus from your hands to your eyes, nose or mouth. Fomite spread is more likely on hard, non-porous materials like metals and plastics. Regular use of hand sanitizer and vigorous hand-washing can prevent fomite spread.</p>	 <p>Droplets are moist particles expelled from speaking, breathing, coughing and sneezing. They are considered to be the primary vector of COVID-19 infection. Virus-bearing droplets can spread coronavirus through your eyes, nose or mouth. Droplets do not remain airborne long: 6 feet of distance limits exposure, but masks covering the mouth and nose are the best prevention.</p>	 <p>Aerosols are tiny particulates that infected carriers exhale, especially when shouting, singing, or speaking. Aerosols are mostly inhaled as a means of transmitting the virus. Unlike droplets, aerosols can remain airborne for several hours, can travel further than 6 feet, and may accumulate, especially in poorly ventilated, closed spaces. Masks, worn snugly and properly, are extremely effective at containing aerosols. Remaining outdoors, where aerosols cannot accumulate, also prevents transmission</p>
 <p>Hand washing</p>  <p>Hand sanitization</p>	 <p>Mask wearing</p>  <p>Eye protection</p>  <p>Social distancing</p>  <p>Staying outdoors</p>	 <p>Mask wearing</p>  <p>Staying outdoors</p>  <p>Ventilation</p>  <p>Social distancing</p>

Source: CDC / UMMC

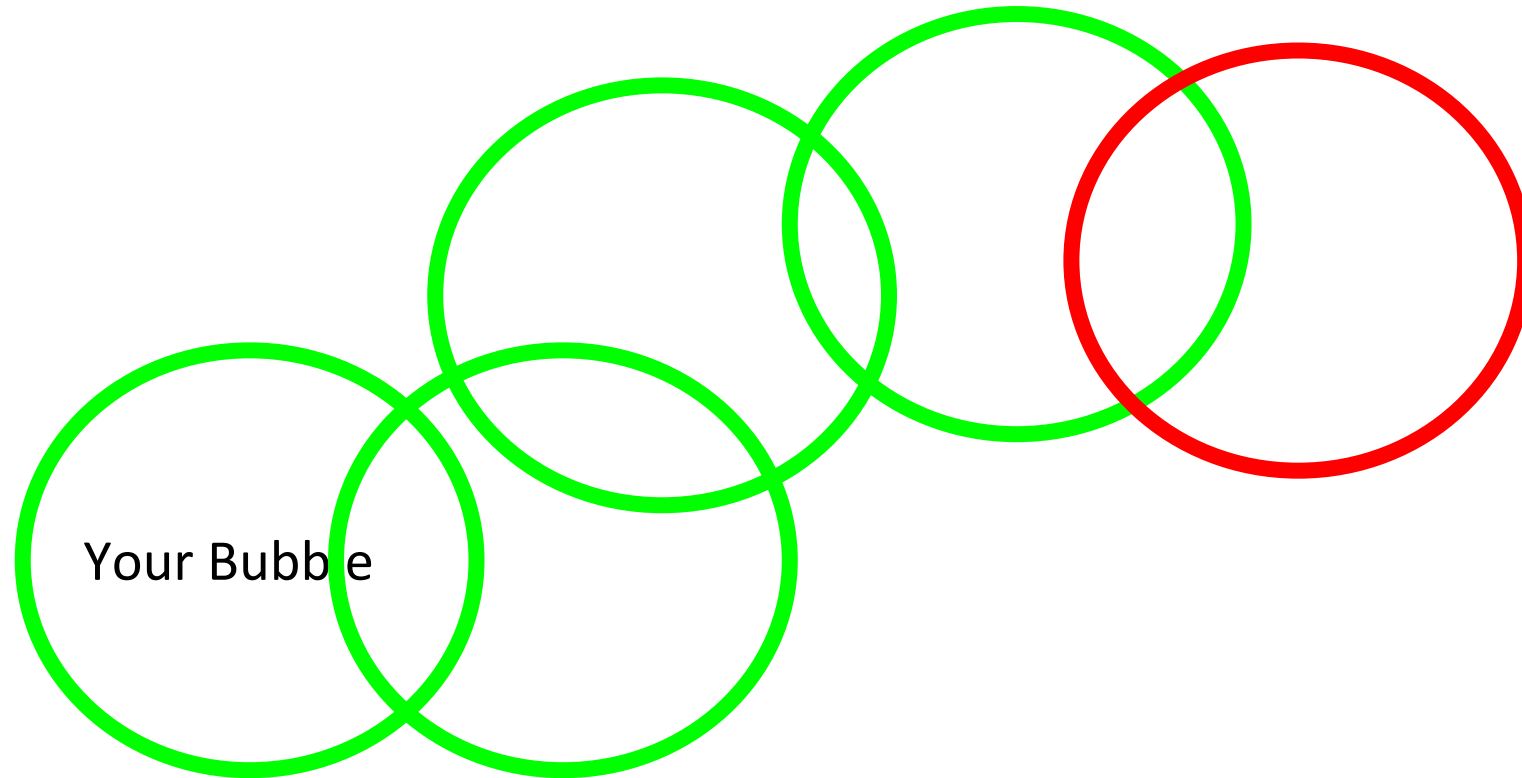
COVID-19 Incubation Timeline - Up to 14 Days



Symptoms include:

- Fever or chills
- Cough
- Shortness of breath/difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

How COVID-19 Can Spread Between Personal Bubbles



COVID-19 testing: When should someone get a test?

According to the USA CDC, these individuals should be tested:

- People who have symptoms of COVID-19
- People who have had close contact for >15 mins with someone with confirmed COVID-19
- People who have taken part in activities that put them at higher risk for infection because they cannot social distance as needed (travel, large gatherings, crowded indoor settings)
- If your healthcare provider asks or refers you to testing

While waiting for test results, quarantine/self-isolation is recommended

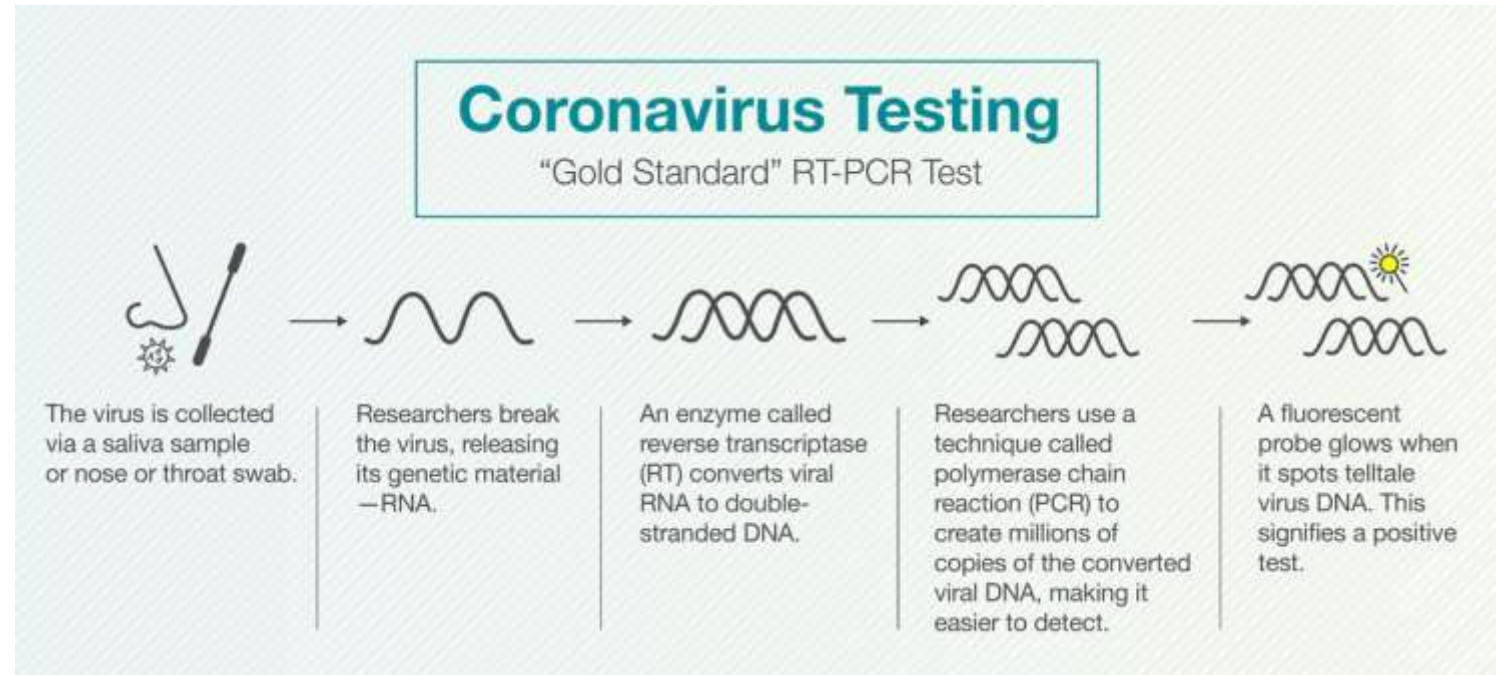
COVID-19 Testing: PCR vs Antigen vs Antibody



- 3 Types of COVID-19 Tests
 - PCR tests
 - Antigen tests
 - Antibody tests
- PCR and Antigen tests are a “snapshot” of the moment when tested

COVID-19 PCR Testing

- PCR testing is the most sensitive method of testing
- Can be expensive and take days for a result to come back
- Detects viral genetic material
- Nose, nasopharyngeal, saliva samples
- Can stay positive after you have recovered from COVID-19



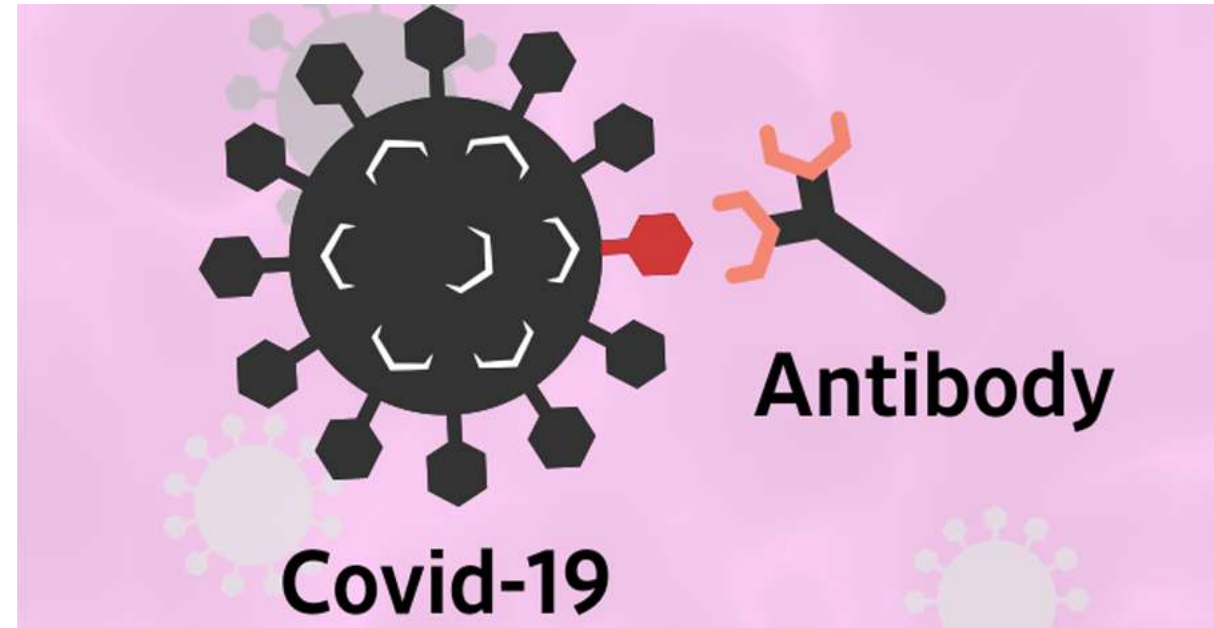
COVID-19 Antigen Testing



- Uses nasal and nasopharyngeal swabs to detect viral proteins (antigens)
- Fast (~15 mins) and relatively cheap
- Less sensitive than PCR
 - More sensitive in symptomatic (~70-80%) than asymptomatic (~50%) individuals
 - Negative result must be confirmed by PCR

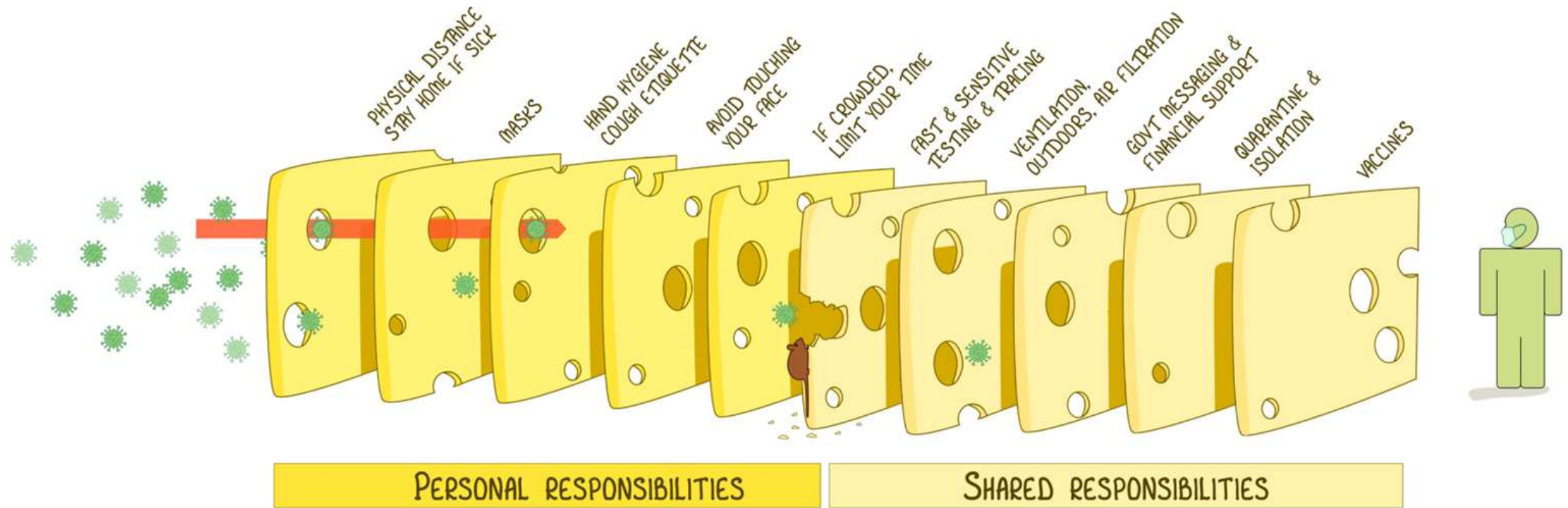
COVID-19 Antibody Testing

- Uses a blood sample to detect antibodies to COVID-19
- Presence of antibodies indicate exposure and/or previous infection to COVID-19
- Although unknown how long antibodies last, newer evidence suggests antibodies may confer some immunity



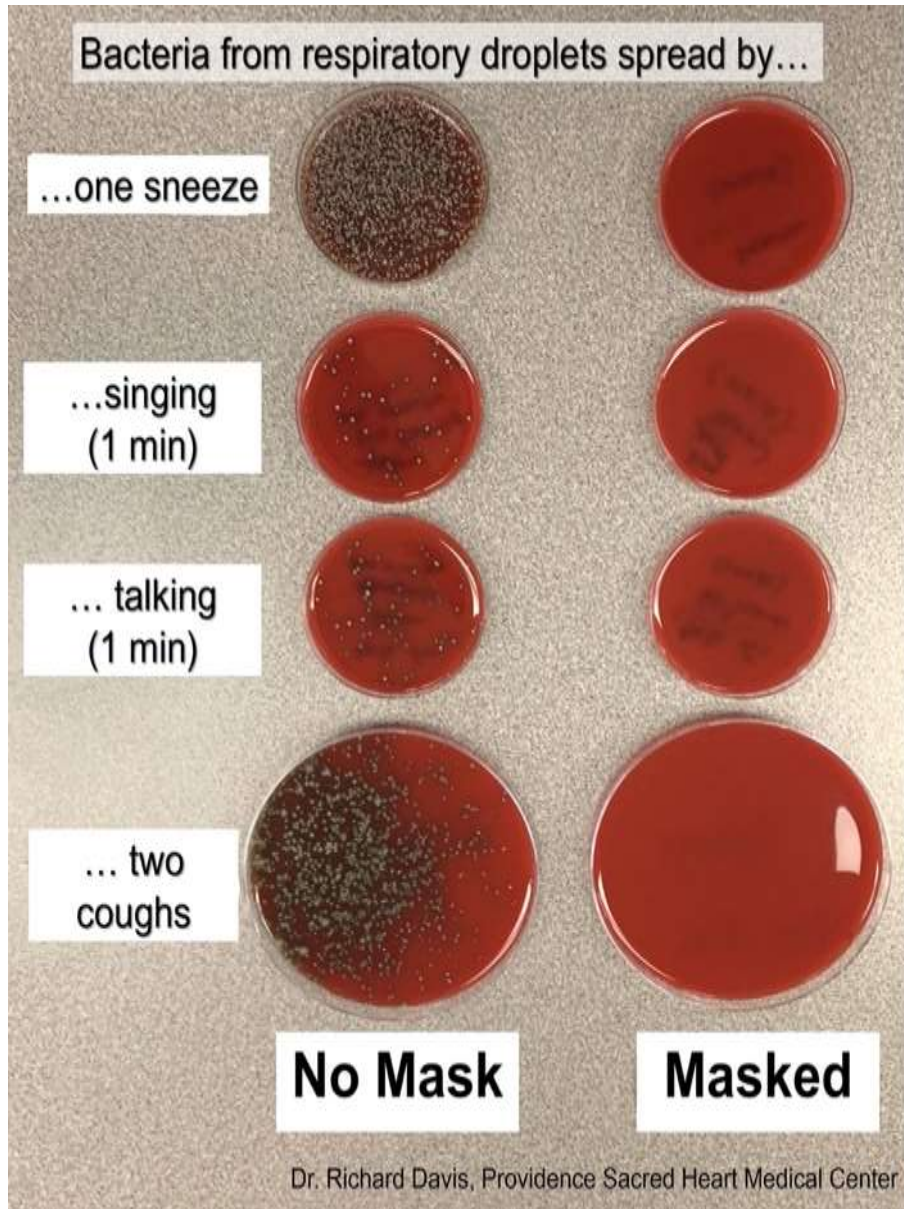
COVID-19 Prevention Strategies: Layers of Defenses

THE SWISS CHEESE RESPIRATORY VIRUS PANDEMIC DEFENCE
RECOGNISING THAT NO SINGLE INTERVENTION IS PERFECT AT PREVENTING SPREAD



EACH INTERVENTION (LAYER) HAS IMPERFECTIONS (HOLES).
MULTIPLE LAYERS IMPROVE SUCCESS.

COVID-19 Prevention Strategies: Masks



- Masks that cover mouth and nose block release of respiratory droplets that contain virus (and other microorganisms)
- Effective at blocking large droplets; multilayer masks can block small droplets that aerosolize
- Studies suggest multilayer masks may also filter out small droplets before you breath them in
- USA CDC studies have found masks prevented infections in:
 - A hair salon
 - A navy ship
 - Long haul flights
 - Hospital systems

Masks Do Not Affect Oxygen and CO₂ Levels

Table 2. Oxygen Saturation Before, While, and After Wearing Nonmedical Face Masks

	SpO ₂ , mean (SD), %
No. of participants	25
Before mask wearing, SpO ₂ reading	
1	96.1 (1.3)
2	95.8 (2.1)
3	96.3 (1.6)
Pooled mean SpO ₂ , % (95% CI) ^a	96.1 (95.5-96.7)
While mask wearing, SpO ₂ reading	
1	96.4 (1.2)
2	96.5 (1.3)
3	96.7 (1.1)
Pooled mean SpO ₂ , % (95% CI) ^a	96.5 (96.1-97.0)
After mask wearing, SpO ₂ reading	
1	96.4 (1.3)
2	96.4 (1.4)
3	96.2 (1.4)
Pooled mean SpO ₂ , % (95% CI) ^a	96.3 (95.8-96.8)

Abbreviation: SpO₂, oxygen saturation measured using a portable oximeter.

^a 95% CIs are 2-sided.



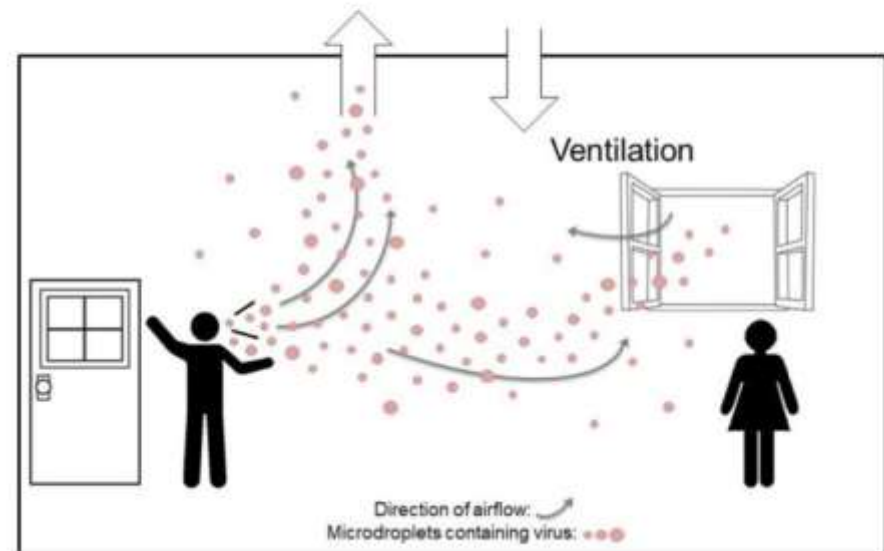
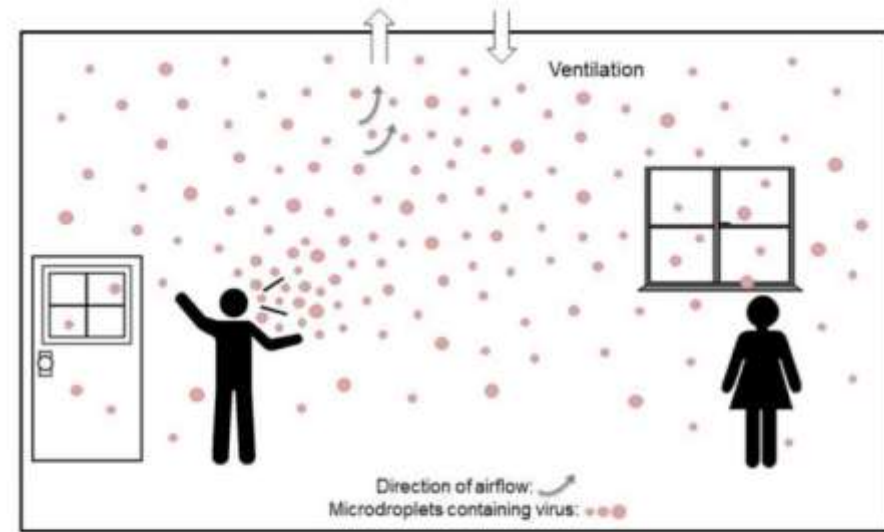
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- Air molecules (oxygen, CO₂) flow through mask/filter
- More energy required to move air through mask/filter, meaning increased exertion, especially when exercising

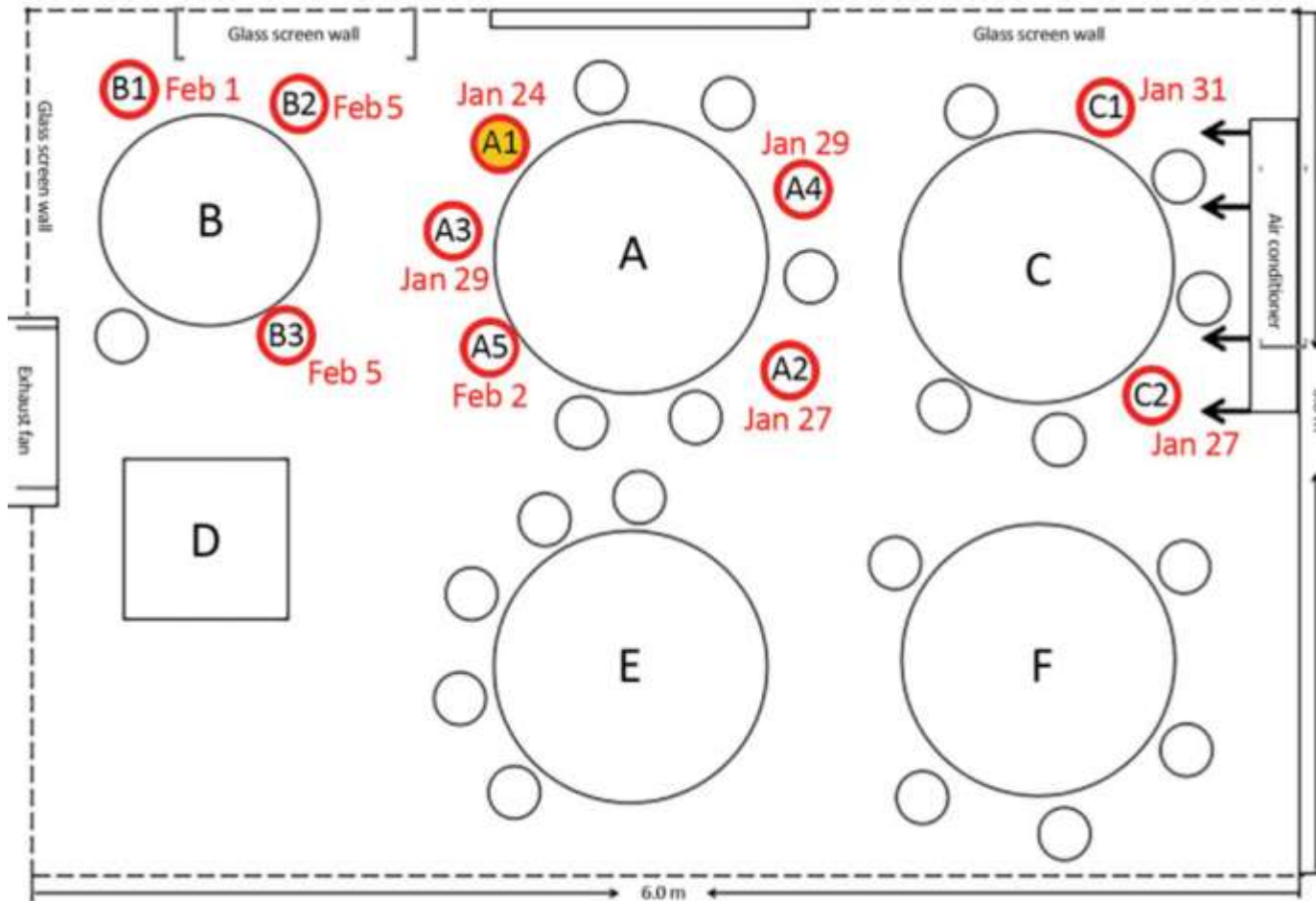
COVID-19 Prevention Strategies: Ventilation and Filtration

- Droplets can spread via air currents
 - Large droplets vs small droplets
- Outdoor activities vs Indoor activities
- Increase ventilation by opening windows or venting in fresh air
- Higher grade HVAC filtration



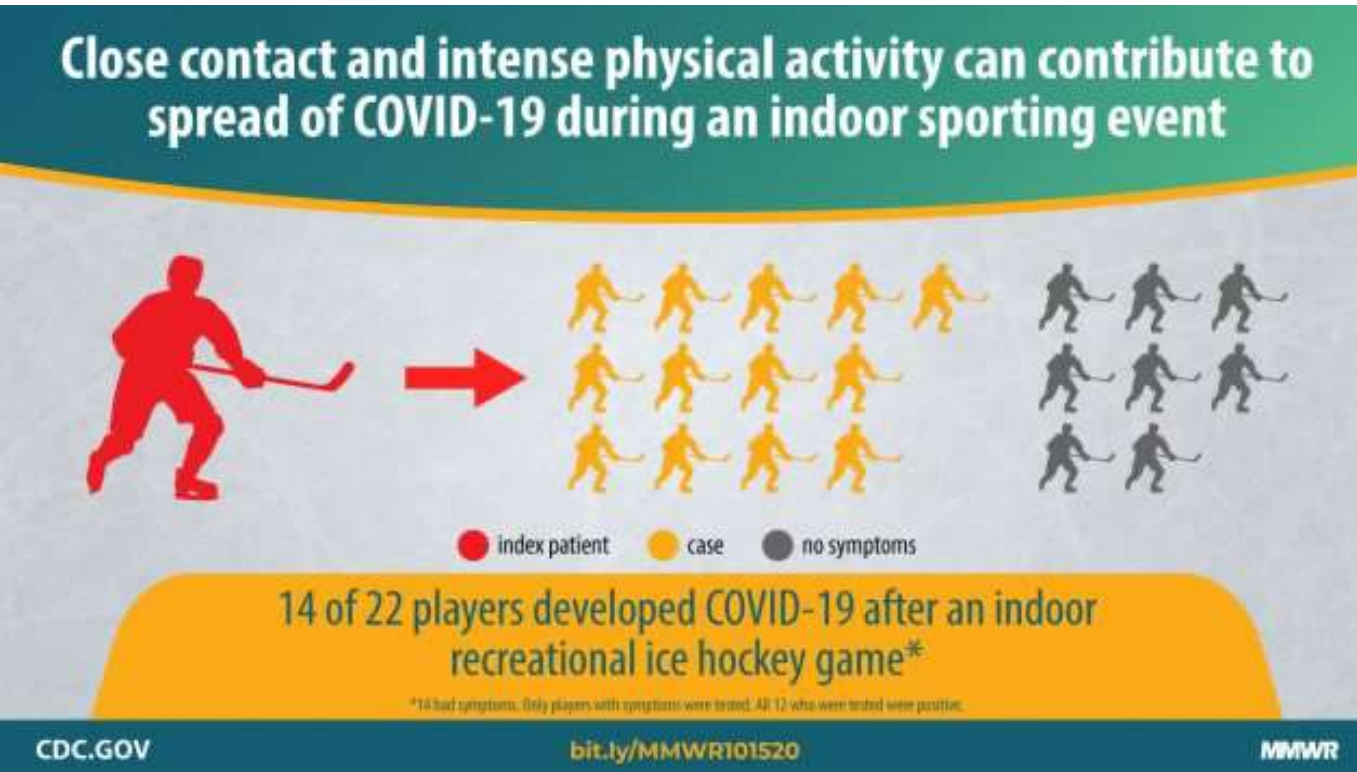
Adapted from Morawska and Milton, *Clin Inf Dis*, 2020.

Outbreaks in Restaurants



- Index patient (A1) ate with family at table A. Two other families ate at tables B and C.
- Air conditioning created air flow around tables A, B, and C that spread air contaminated with viral droplets
- Air currents can also affect spread in outdoor dining

Outbreaks in Other Ice Sports: Hockey

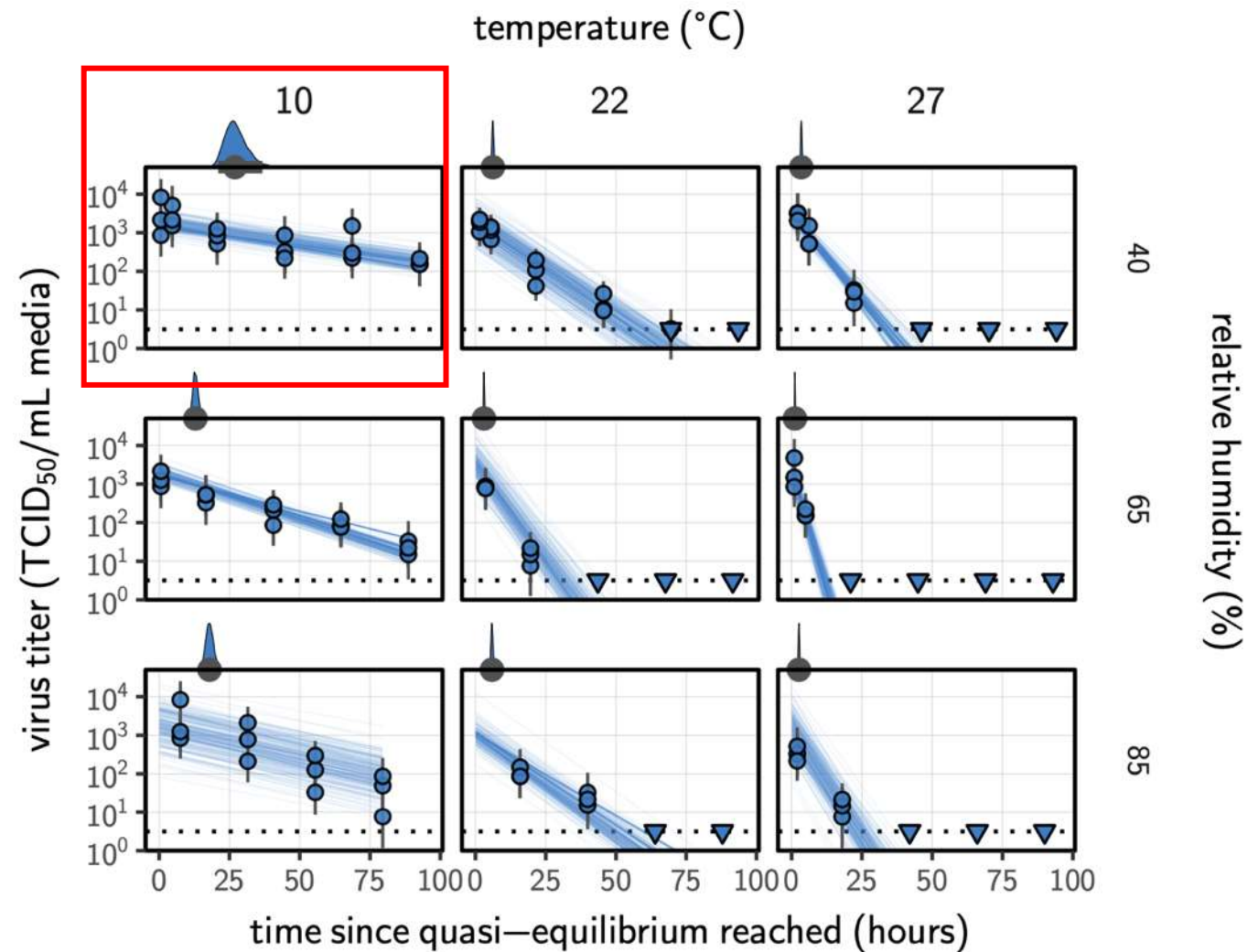


Atrubin et al, *MMWR*, 10/16/2020

- CDC MMWR study on outbreak from recreational ice hockey in Tampa Bay, Florida, June 2020
- Believed one player infected 13 others either on ice/bench or in locker room.
- Heavy breathing (release of more virus), no mask use, and limited airflow indoors were important factors for spread.
- Air engineers hypothesize that ice rinks may capture air just above head level, may represent risk to participants.

COVID-19 Stability at Low Temperature and Low Humidity

- 2010 study that animal coronaviruses survive for many days at low temperature (4°C/39.2°F) and low humidity (20% RH) (Casanova et al, 2010)
- COVID-19 exhibits similar behavior on plastic surfaces



Adapted from Morris et al, *bioRxiv*, 2020.

COVID-19 at USA Curling Club National Championships

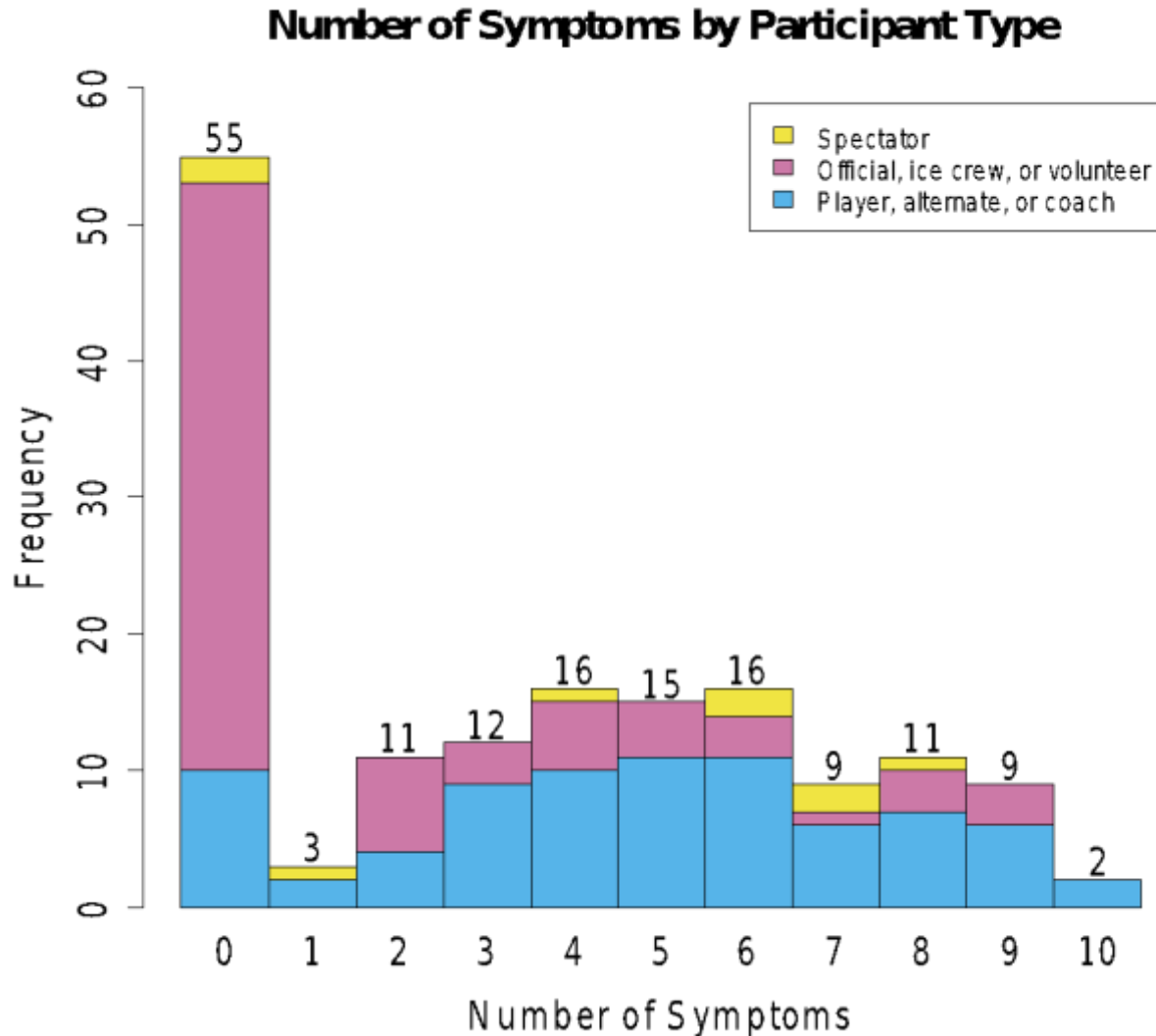
- Weeklong tournament to determine men's and women's club-level champions
- March 7-14, 2020
- 10 teams representing the 10 regional associations
 - AK, AZ, CO, IL, NJ, MN, MI, WA, ND, WI
- Surface cleaning, removed shared food and drink containers, encouraged broom/elbow taps, canceled opening banquet, limited closing banquet.



USA Curling 2020 Club Nationals – COVID-19 Study

- Formal study performed to assess spread of COVID-19 at the club
 - Available on USA Curling website as well as medRxiv
- 159/187 (85%) of participants (players, volunteers, officials, spectators) responded
 - 55.6% of all participants experienced COVID-19 symptoms
 - 77.3% of players experienced symptoms as opposed to 33% of officials/volunteers and 63.6% of spectators
 - 4 hospitalizations
 - 19.8% of all participants tested positive by PCR; 35.3% tested positive for Antibodies

COVID-19 Symptoms and USA Club Nationals

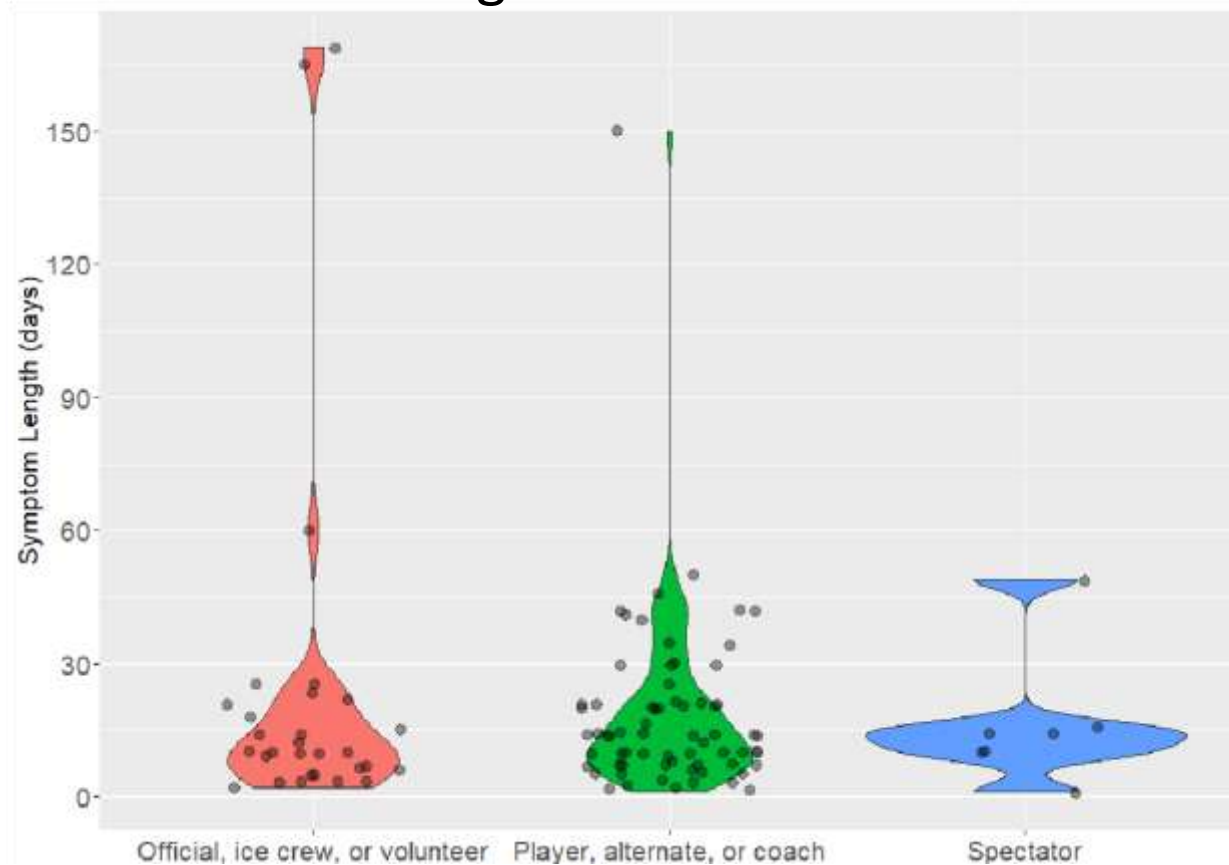


COVID-19 Symptoms

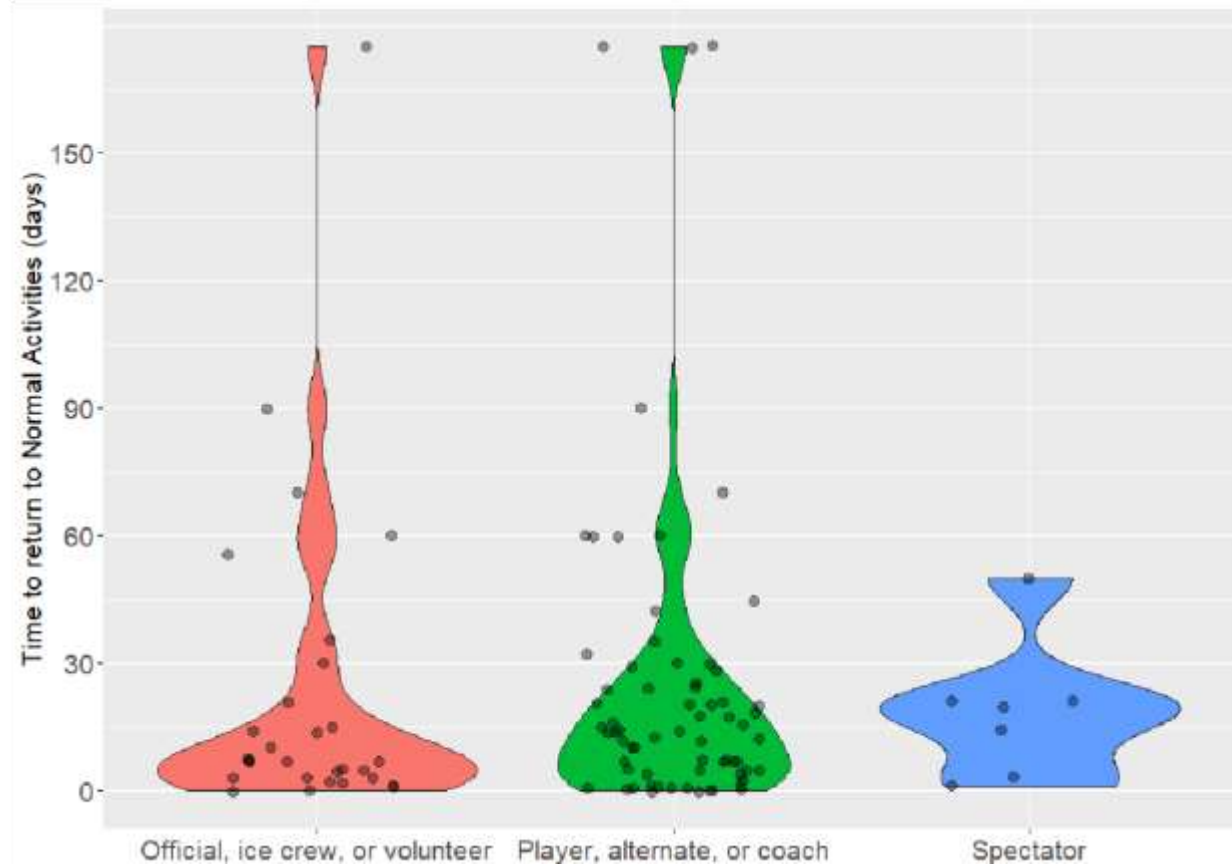
- Fever/Chills
 - Cough
- Difficulty Breathing
 - Fatigue
- Muscle/Body Aches
 - Headache
- New Loss of Taste/Smell
 - Sore Throat
- Congestion/Runny Nose
- Nausea or Vomiting
 - Diarrhea
 - Other

Duration of Symptoms and Return to Normalcy after Club Nationals

Number of Days Symptoms Experienced Following USA Club Nationals

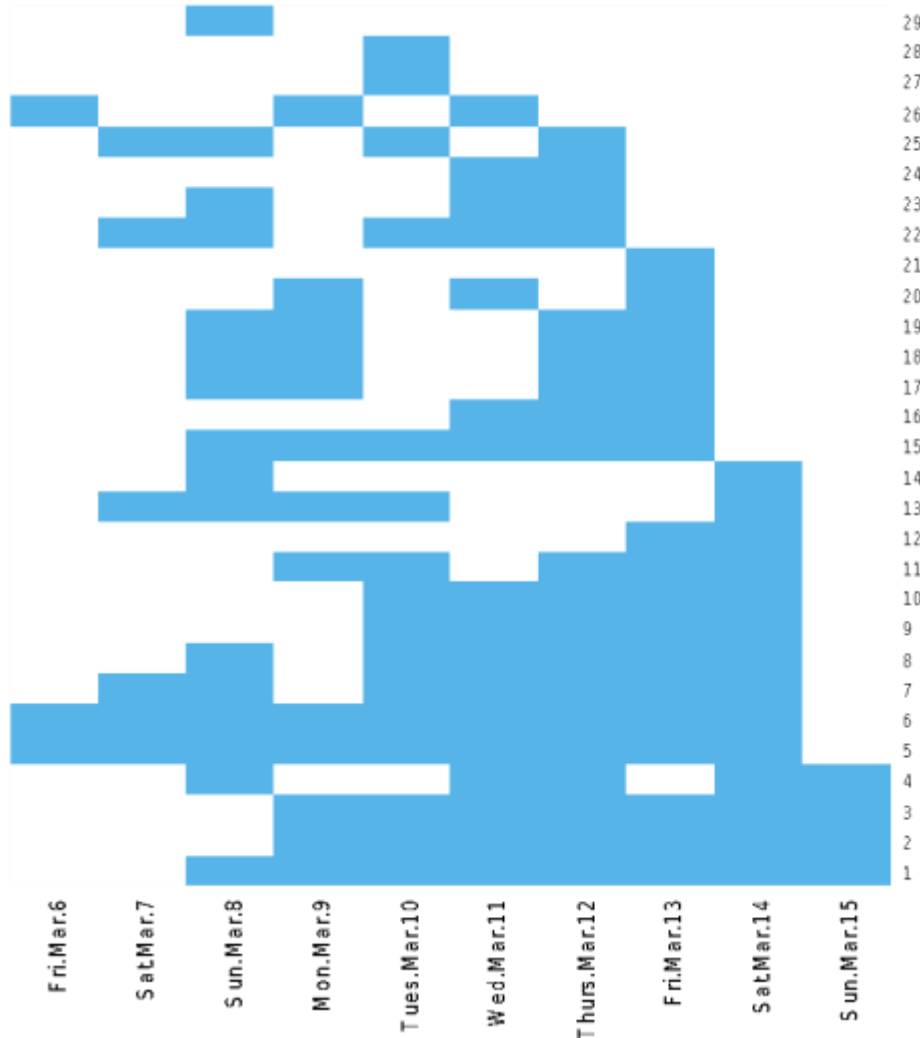


Number of Days Until Able to Return to Normal Activities Following USA Club Nationals

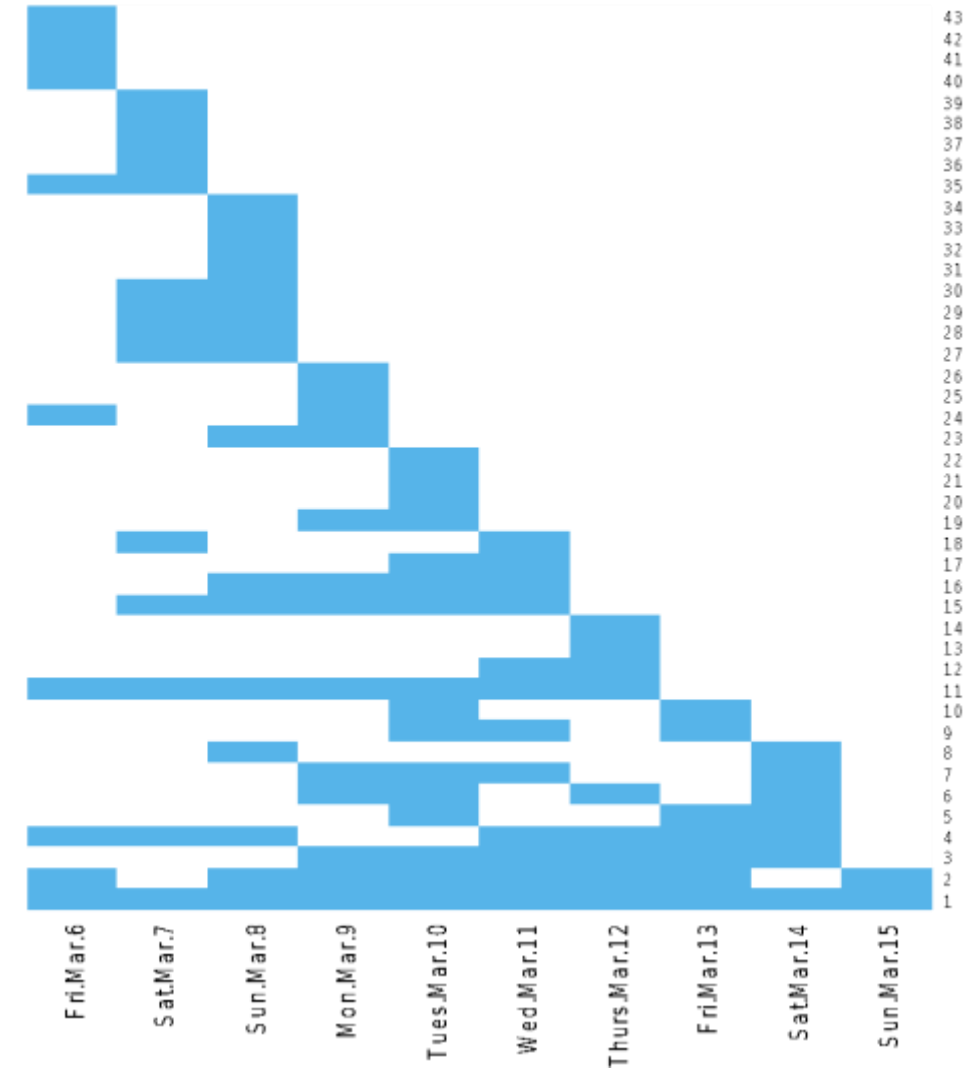


Number of Days Attended by Symptomatic and Asymptomatic Club Nationals Volunteers

Symptomatic Volunteers



Asymptomatic Volunteers



Bonspiel in Alberta

Saskatchewan

13 cases of COVID-19 linked to curling bonspiel attended by doctors from across western Canada



Bonspiel started March 11, the day COVID-19 was declared a global pandemic

CBC News · Posted: Mar 21, 2020 8:04 PM CT | Last Updated: March 23, 2020



- Healthcare professional bonspiel in Alberta March 11-14 2020
- 12 of 47 healthcare professionals tested positive following the bonspiel
- Many saw patients afterwards resulting in contract tracing nightmare

Club Outbreaks in USA

(STEVENS POINT, Wis.) -- USA Curling has confirmed that there have been three curling clubs within the United States that have experienced positive cases of COVID-19 to varying degrees.

USA Curling's Member Services team has contacted these clubs to learn the facts of each instance, as accurate information sharing is essential to help plan a return to curling or to modify already existing guidelines.

Based on these conversations, recommendations from the USOPC Chief Medical Officer, and the CDC, USA Curling continues to discourage broomstacking in its traditional form, encourages clubs to enforce the wearing of masks (even while competing), and to allow only one active sweeper at a time.

Additionally, affected clubs that have implemented contact tracing procedures have been able to notify all impacted members, thus reducing the chances of an outbreak.

Should your club encounter a positive case of COVID-19, please contact [USA Curling's Member Services team](#), as the organization will continue to prioritize the health and safety of the curling community by sharing any applicable information, while remaining cognizant of confidentiality.

USA Curling wishes all impacted curlers a fast and full recovery.

- 3 clubs in the USA in late October 2020
- Some with masks required in leagues, others not
- All allowed post game socializing in some form
- Spread seen between teams playing on sheet as well as some not in game (~10-15 people)

Outbreak in Saskatchewan

[REGINA](#) | News

Large number of COVID-19 cases linked to curling events in Regina

[CTVNewsRegina.ca](#) Staff
[Contact](#)

Published Sunday, November 29, 2020 6:57PM CST

Last Updated Monday, November 30, 2020 6:06PM CST

- Seniors bonspiel
- Masks required in lobby, but not on ice. Lounge was open, albeit with limited capacity at each table
- Rink closed to public, limited number of sheets in play, cleaned rocks, cleaned surfaces every 60 mins
- Team pulled out mid-spiel with flu-like illness, tested positive for COVID-19. Others soon tested positive

Denmark World Qualification Tournament



- Negative PCR test 3 days before competition
- Player test positive Saturday evening during competition (negative Thursday and Friday by PCR)
- 14 out of 16 players ultimately tested positive
- Men and women played on opposite sides of rinks but spread still occurred
- No bubble

Curling COVID-19 Outbreaks: What Went Wrong?

- Masks not required (or known to be required) during play
- Indoor socializing/dining without masks
- Limited changes to airflow (if any)
- Survival of COVID-19 at low temperatures and humidity

Starting (Resuming) Club Curling in the Near Term

- The best way to avoid getting COVID-19 is to not expose yourself to COVID-19
- Follow all local/state (provincial)/federal guidelines and requirements
 - Current Guidelines for PG County, MD, USA
 - **Local (PG County):** Face coverings required indoors and outdoors even when exercising; Indoor skating rinks may operate at 25% capacity; indoor dining is prohibited; follow CDC guidelines.
 - **State (Maryland):** Gatherings not to exceed 10 people; limit travel to essential purposes only; if travel to a non-contiguous state must get a test or quarantine for 10 days.



Potomac Curling Club
at the National Capital Curling Center

Our Club + | Curling Resources + | Events + | Leagues + | Programs + | Contact + | Login

Quick Links: [Try Curling](#) | [Membership](#) | [Rentals](#) | [Webcast](#) | [Practice Ice](#) | [Volunteer](#) | [Make a Donation](#)

The Potomac Curling Club is closed for the 2020-2021 season.

You can still maintain your membership!
Membership Registration And Renewal for the 2020-2021 season is open.
[Membership Information](#) - [Become a New Member](#) - [Renew your Membership](#)

While we currently can't have ice due to the COVID-19 pandemic, we are looking forward to bringing you many virtual events over the next few months! Membership with Potomac also ensures you maintain your membership in our parent and partner organizations, the USCA, GNCC, and USWCA. Our new membership fee levels give you the flexibility to maintain your membership in the way that works best for you!

[Frequently Asked Questions about Club Closure](#)

[Jan 9th Virtual Trivia Night Information & Links](#)

Interested in curling? Join our mailing list or sign up!

Just want a taste of curling? In a typical year, we host several Learn to Curl nights in the fall and will have "Try Curling" / Open Houses in November and February. To be notified when registration opens for these events, [sign up for our Try Curling mailing list](#).

Ready to take the plunge? In a typical year, our league registration periods are in August for October to mid-January leagues and December for mid-January to April leagues. We also have [daytime program opportunities](#) which are available all season long. These memberships grant you access to our member drop-in curling programs. Check out all of our [membership options](#).

Members: Handle Donor Program

Potomac Curling Club is offering the opportunity to sponsor a rock and become a Handle Donor. The cost is \$200 to sponsor a rock with engraving on one side; \$300 to sponsor a rock with engraving on both sides. Each rock is limited to 1 sponsor. Use the [Contact Us](#) form with any questions.

- [Link to New Handle Donor Spreadsheet](#) (Check to see if your desired rock is available!)
- [Link to Handle Donor Form](#)

2020-2021 Major Events

- To be update once we reopen...
- Glitter Bombspiel - [\[Cancelled\]](#) (Oct 2020)
- Potomac Junior Bombspiel - [\[Cancelled\]](#) (Nov 2020)
- Embassy Row - [\[Cancelled\]](#) (Nov 2020)



**BE A ROCK STAR
TRY CURLING**

Starting/Resuming Club Curling - Masks

- Masks one of the easiest methods to slow the spread of COVID-19
- Require masks at all times, including during play
- Have policies in place on mask use and misuse, including exclusion of masks that don't work (exhalation valves/vents)

DO choose masks that	DO NOT choose Masks that
 <p>Have two or more layers of washable, breathable fabric</p>	 <p>Are made of fabric that makes it hard to breathe, for example, vinyl</p>
 <p>Completely cover your nose and mouth</p>	 <p>Have exhalation valves or vents which allow virus particles to escape</p>
 <p>Fit snugly against the sides of your face and don't have gaps</p>	 <p>Are intended for healthcare workers, including N95 respirators or surgical masks</p>

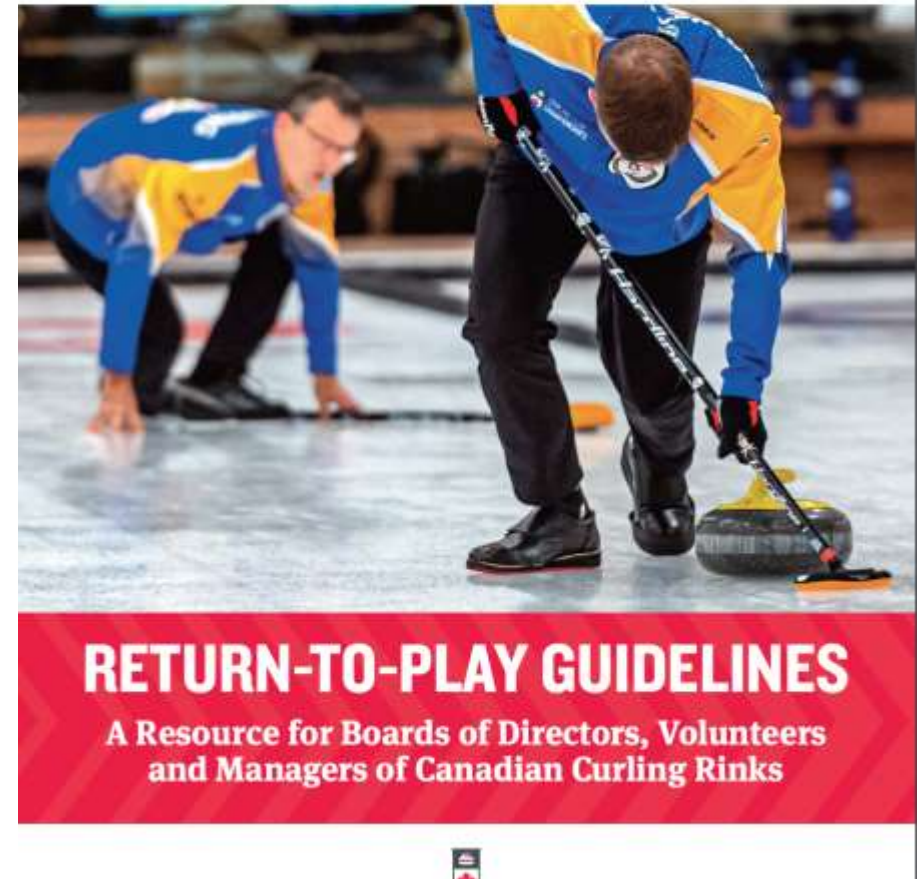
Special Considerations

Gaiters & face shields	
 <p>Wear a gaiter with two layers, or fold it to make two layers</p>	 <p>Not recommended: Evaluation of face shields is ongoing, but effectiveness is unknown at this time.</p>

Glasses	
 <p>If you wear glasses, find a mask that fits closely over your nose or one that has a nose wire to limit fogging.</p>	

Starting/Resuming Club Curling – Rules Changes

- Multiple changes recommended by USCA and Curl Canada
 - Implement rules changes that promote distancing
 - Masks
 - No indoors socializing/broomstacking



Starting/Resuming Club Curling – Ventilation and Filtration

BRITISH CURLING RETURNS TO TRAINING AT NATIONAL ACADEMY

Posted on 3 August 2020

British Curling's athletes are returning to training today at the purpose built National Curling Academy (NCA) in Stirling after an extended off-ice season caused by COVID-19 challenges.

The return has been delayed due to new health and safety guidance relating to COVID-19 transmission, which has required alterations to the air handling plant at the specialist venue managed by Active Stirling.

With the late cancellation of last season's women's, men's and mixed doubles World Championships as a result of the pandemic, the coming campaign represents the only opportunity for British Curling to secure places at the Beijing Winter Olympics in 2022. That has placed extra emphasis on the need to ensure that challengers for Team GB places are match ready as soon as competition is possible, with the first event scheduled for the end of August in Switzerland.



Recognition of that need has resulted in the support from UK Sport and Active Stirling/Stirling Council which has allowed the installation of new equipment in the NCA, ensuring that there is 100% fresh air, rather than re-circulated air within the academy, in accordance with new guidelines for buildings.

According to USA CDC:

- Ventilation
 - Increase outdoor air ventilation
 - Increase fresh air by opening windows and doors, use fans to increase effectiveness
 - Run ventilation in the “on” setting for continuous fan operation
- Filtration
 - Increase air system filtration to highest possible without severely reducing airflow (MERV13 as minimum)
 - Consider portable HEPA if needed

Starting/Resuming Curling – Ice Maker Precautions

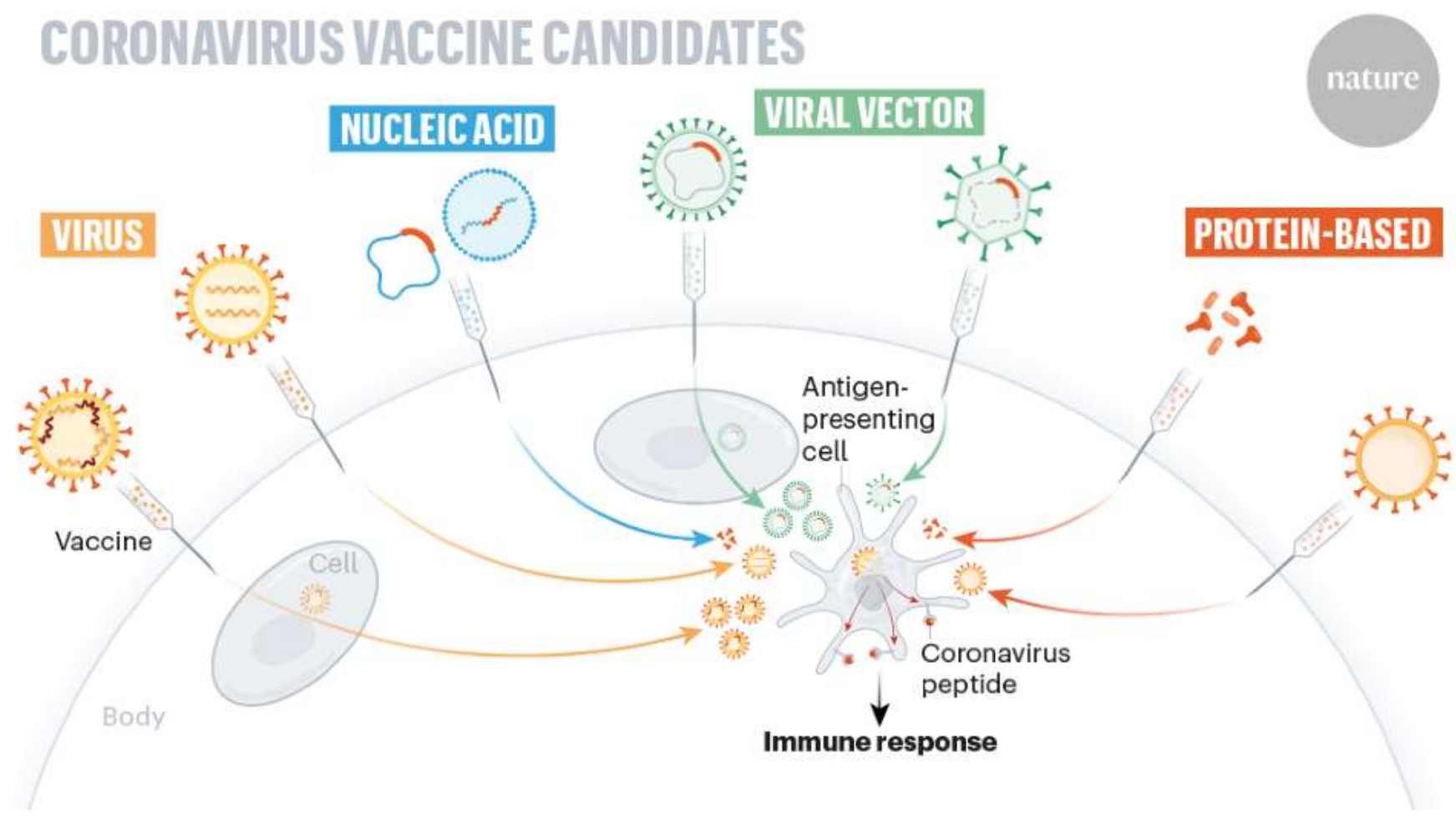
- Unknown whether virus survives on ice surface directly
- Droplets may disperse while scraping
- Precautions
 - Mask
 - Face shield/goggles
 - Clean scraper handles
 - Hand hygiene
- Airflow changes may affect ice playing surface



Club Curling in Fall 2021

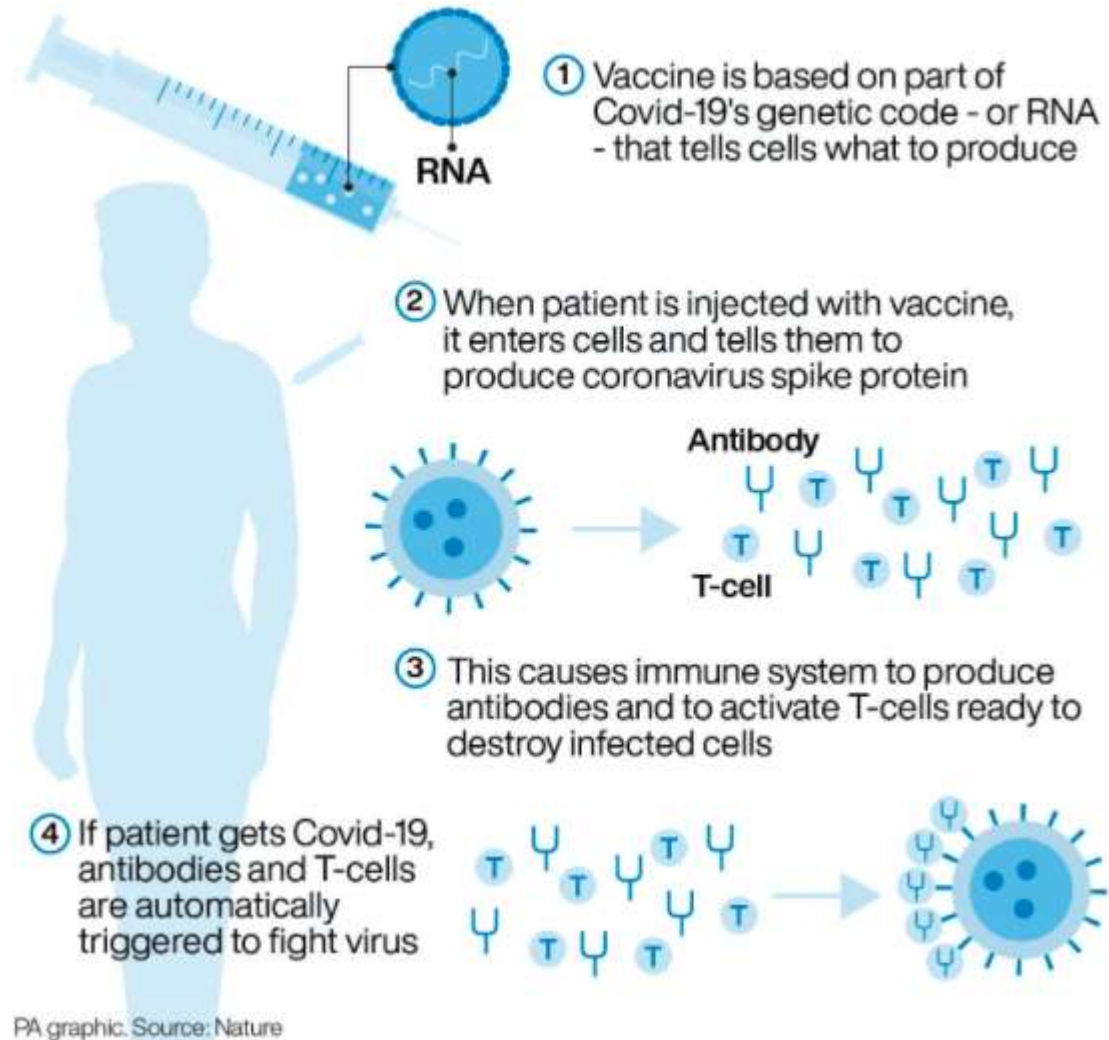
- Future is difficult to predict. Who thought we would have a COVID-19 vaccine before end of 2020?
- Number of questions club Board of Directors must assess
 - What are the local, state/provincial, and federal regulations in relation to indoor activities?
 - What are the current regulations on mask use?
 - What are the cleaning and airflow policies we want and/or need to keep in effect?
 - What are the infection and vaccination rates for our area? Can a club require vaccination to play?

COVID-19 Vaccine Candidates



Science Behind the Pfizer and Moderna Vaccines

How the Pfizer/BioNTech vaccine works



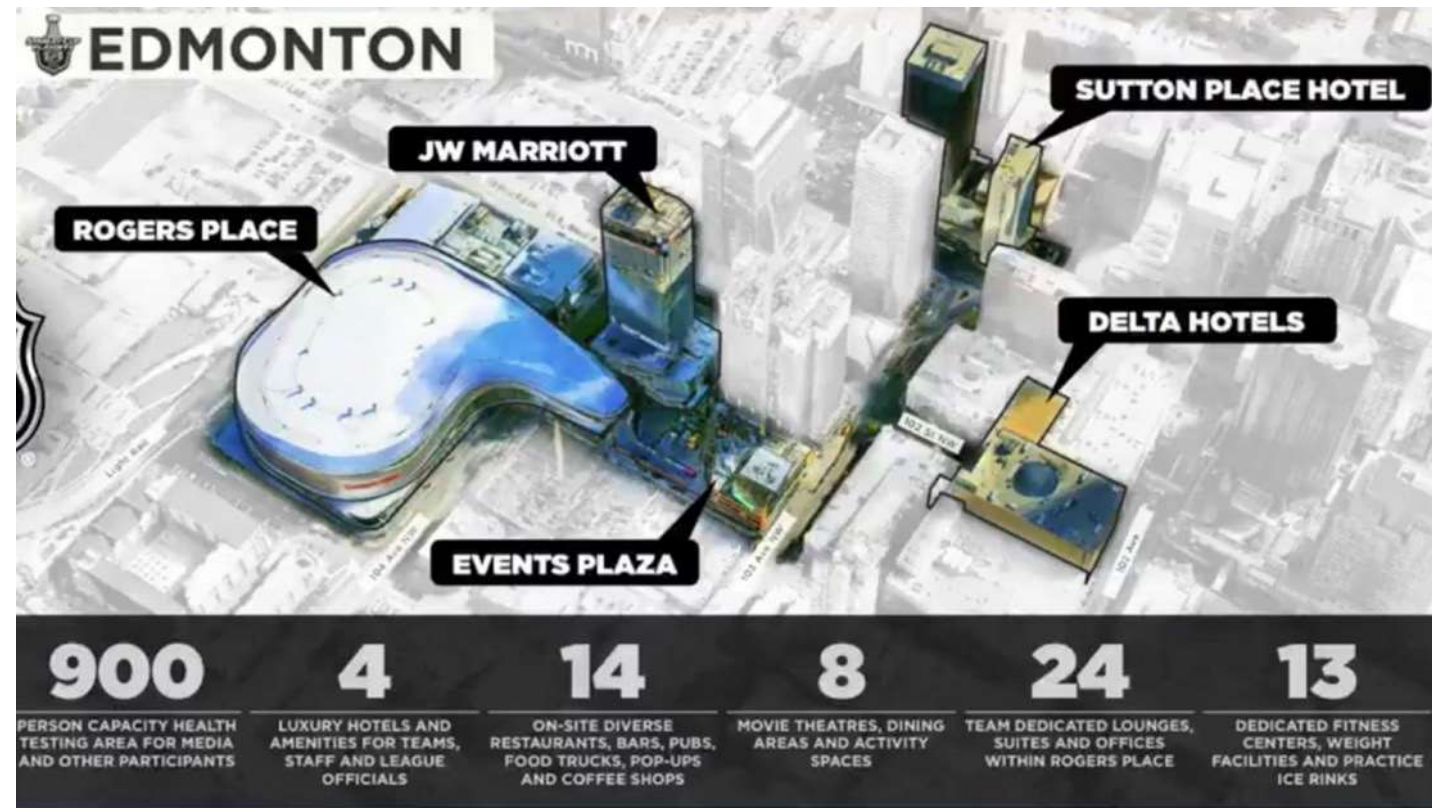
- Vaccine found to be 95% effective
- Common side effects same as other vaccines
- Continue to wear a mask, social distance, etc even after receiving vaccine

Why are Club vs Professional Events so Different?

- Club/Community Events
 - Testing done at medical tents, hospitals, pharmacy
 - Individuals live in community, exposed to personal and family bubble
 - Volunteers/staff same as club members
 - Subject to infection prevention measures according to local/state (provincial) guidelines
- Professional Events
 - Testing, hotel, meals often paid for (high budget)
 - Players isolated as they wait out quarantine period
 - Volunteers/staff subject to strict guidelines
 - Isolation continues such that masks, other infection prevention measures may not be required

What Made the NHL Bubble Work?

- Tested multiple times per week prior to arriving
- Tested daily after arriving
- Only travel group interaction first week after arriving
- Teams generally isolated to floors/socialization areas
- Masks required at all times when not playing



Scotties/Brier/Men's Worlds/Grand Slam's Curling Bubble: What We Know

- Testing
 - Must show proof of a negative COVID-19 test within 3 days of arrival
 - Tested on arrival
 - Testing during play(?)
 - Many symptom and temperature checks
- Isolation/Quarantine
 - Suggested to isolate as much as possible 14 days prior to event
 - Must travel directly between home/airport and host hotel
 - Personal rooms, although can meet with team in rooms
 - Meals must be in hotel



Curling Bubble: Potential Risks

- Testing day -3 and day 0 may not detect asymptomatic or pre-symptomatic individuals prior to competition
- Not requiring masks during competition increases exposure from heavy breathing
- Dining indoors increases risk of exposure and infection 2-3x

Summary

- Curling rinks are an opportune environment for COVID-19 to spread – low temperature, low humidity, low airflow
- Measures to prevent COVID-19 infections include masks, ventilation, no indoor socializing
- COVID-19 vaccines are effective, safe, and will be important for future reopenings
- Professional sports bubbles safer, but design still has risks



Wall Street Journal, 11/1/2020