



Minnesota Department of Health Process for Assessing Situational Risk for Transmission SARS-CoV-2

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Executive summary

From the beginning of the pandemic, when making decisions, the governor has considered and weighed three priorities: preventing serious illness and death by controlling the spread of the virus; limiting the impact on the state's economy; and supporting the overall well-being of Minnesotans, all the while focusing on the data and what science is telling us about the virus. This brief focuses on the Minnesota Department of Health's process for assessing situational risk for transmission of SARS-CoV-2 that has informed consideration of how to prevent serious illness and death of Minnesotans by controlling the spread of the virus.

The global COVID-19 pandemic presents an historic public health challenge for Minnesota. As of Jan. 11, there have been at least 437,552 confirmed cases of COVID-19 in Minnesota. At least 22,815 of Minnesota's confirmed cases have required hospitalization and 5,711 have resulted in death. It is likely the number of confirmed cases is significantly underestimated due to large numbers of asymptomatic carriers, individual choices to avoid getting tested, and other factors. It is also unknown how many Minnesotans who have contracted COVID-19 will suffer long-term health consequences from the disease, though there is growing evidence that long-term consequences should be of significant concern.

The pace of the pandemic has varied since Minnesota recorded its first case in March 2020, but the threat of runaway growth has remained an ever-present concern for hospitals and the health care system. This threat came close to reality in the autumn of 2020. It took Minnesota more than six months to record its first 100,000 confirmed COVID-19 cases, but only 41 days to add an additional 100,000 new cases and just 16 days to reach another 100,000 cases. By November, Minnesota was reporting record numbers of daily new cases, hospitalizations, intensive care unit admissions, and deaths. This acceleration in COVID-19 spread prompted a series of measures by Governor Tim Walz designed to prevent the devastating impacts of an overwhelmed health care system. The measures focused on the areas where evidence has shown there is the greatest potential for rapid person-to-person transmission.

Those measures were implemented based on the growing body of research that has revealed the conditions in which COVID-19 is most likely to spread. The reality is that whenever people gather near others, there is a risk of contracting COVID-19. That risk increases when people are:

- Closer than 6 feet apart.
- Not masked.
- In close contact repeatedly or for long durations of time, greater than 15 minutes.
- Gathering indoors or in an enclosed space.
- In spaces where ventilation is poor.
- Exhalation is of increased force or frequency such as in exercise, speaking, laughing, singing or shouting.

Based on these well-established risk factors, supporting case investigation data, and the urgent need to bring to a halt the exponential growth in cases, it was determined that additional restrictions on bars and restaurants; sports; gyms, fitness centers and similar facilities; entertainment and event venues; and private social gatherings were necessary and that existing restrictions on retail, personal services, and religious services should be continued. The significant risk of transmission in these settings and for those activities is well supported by the published scientific literature. Minnesota was not alone in making this determination, as multiple states and countries have taken similar action to slow COVID-19 surges to protect their health care systems and to prevent serious illness and death.

How COVID-19 spreads

COVID-19 is a highly transmissible and deadly disease that threatens the health and safety of Minnesotans. People who are infected with COVID-19 can experience a wide range of illness, from having no symptoms or very mild symptoms, all the way up to severe illness requiring hospitalization. Some cases of severe illness may result in death. Also, some people infected with COVID-19 develop long-term health problems that stay with them far beyond the time when they are actively infected with the virus. While the risks of severe illness and death are higher for older people and those with certain underlying conditions, severe cases and deaths have been reported in young, otherwise healthy people as well.

SARS-CoV-2, the virus that causes COVID-19, is primarily spread when people are exposed to respiratory droplets released into the air by infectious people when they breathe, talk, shout, sing, laugh, cough, and sneeze. The virus may also be spread when infectious people have contaminated a surface with the virus that is then touched by other people. The virus is spread by people who are infectious whether they are experiencing symptoms of COVID-19 or not.

After exposure to the virus, it can take up to two weeks for people to develop symptoms – but not everyone who is infected has obvious symptoms of COVID-19. These people who are infectious but not experiencing symptoms are estimated to account for more than 50% of COVID-19 transmissions.

The need to dial back

From the beginning of the pandemic, when making decisions, the governor has considered and weighed three priorities: preventing serious illness and death by controlling the spread of the virus; limiting the impact on the state's economy; and supporting the overall well-being Minnesotans, all the while focusing on the data and what science is telling us about the virus. This brief focuses on the Minnesota Department of Health's process for assessing situational risk for transmission of SARS-CoV-2 that has informed consideration of how to prevent serious illness and death of Minnesotans by controlling the spread of the virus.

The public health emergency Minnesota faces from COVID-19 cannot be understated. As of Jan. 11, 2021, there have been at least 437,552 confirmed cases of COVID-19 in Minnesota. A confirmed case is a person who has tested positive for SARS-CoV-2 (the virus that causes COVID-19) using either a nose swab, a nasopharyngeal swab, or saliva sample that is analyzed with an approved molecular or antigen test. At least 22,815 of Minnesota's confirmed cases have required hospitalization and 5,711 have resulted in death. It is likely the number of confirmed cases is significantly underestimated due to the number of people who have contracted COVID-19 but have not been tested because they were asymptomatic, did not have access to testing, or decided not to get tested. It is also unknown how many Minnesotans who have contracted COVID-19 will suffer long-term health consequences from the disease. COVID-19 health impacts can sometimes persist for months and the virus can damage the lungs, heart, brain, and other organs and systems, which increases the risk of long-term health problems.

After four months of a gradual increase in the number of confirmed cases, the increase in confirmed cases began to accelerate to a level of exponential growth by mid-October. It took Minnesota more than six months to record its first 100,000 confirmed COVID-19 cases, but only 41 days to add an additional 100,000 new cases and just 16 days to reach another 100,000 cases. By November, Minnesota was reporting record numbers of daily new cases, hospitalizations, intensive care unit admissions, and deaths.

The surge in COVID-19 cases pushed Minnesota's hospital system close to the breaking point. Due to unprecedented staffing shortages, many hospitals were compelled to divert patients to other facilities and to make difficult choices, including discharging patients that normally would have had longer hospital stays. Hospitals were also running out of critical care beds, which are a necessity for COVID-19 patients experiencing severe symptoms. Long-term care facilities were also at crisis levels, as the number of cases rose again for both residents and staff. The Minnesota National Guard was deployed to staff long-term care facilities who were and continue to be unable to adequately care for residents due to high infection rates in staff.

After a surge of cases and with hospitals nearing a breaking point, the inevitable culmination of the virus' trajectory is an increase in deaths. In November, 1,136 Minnesotans died of COVID-19. In December, 1,730 Minnesotans died from COVID-19. The number of deaths is a lagging indicator for the dramatic increases in community spread that occurred in the preceding months.

To protect the health care system and save lives, it was necessary to bring under control the surge in disease transmission that was inevitably leading to a surge of serious illness and death.

Key pandemic metrics

The Minnesota Department of Health (MDH) uses multiple metrics when assessing the status of the pandemic. Four of those metrics are key to that assessment: rate of new case; test positivity rate; hospitalization rate; and percentage of new cases where the source of infection is unknown (referred to as “community spread”).

The case rate measures the number of new cases per 100,000 residents per day over a seven-day rolling average. The positivity rate measures the percentage of COVID-19 tests that are positive. The hospitalization rate is the number of new hospital admissions per 100,000 residents per day over a seven-day rolling average. And unknown community spread is a measure of the number of people testing positive for COVID-19 without known close contacts with another case. In mid-November, the Minnesota case rate peaked at just over 120 cases per 100,000 per day across Minnesota, and the test positivity rate was consistently over 10%, reaching as high as 15%. With approximately 5.68 million Minnesotans, a case rate of 120 cases per 100,000 people means approximately 6,816 Minnesotans were testing positive each day. By the end of November, these record case rates had resulted in Minnesota reaching its highest rate of hospitalizations during the pandemic, with hospital admissions reaching 36.4 weekly admissions per 100,000 and ICU admissions reaching 5.6 per 100,000. Again these numbers translate to 2,067 Minnesotans hospitalized each week and 318 requiring care in an ICU, with many incurring long-term health consequences. The unknown community spread was roughly 35%. At this level of community spread across Minnesota, people who were infectious were likely to be present in any place people gathered.

COVID-19 transmission risk factors

It is now well understood that a variety of factors increase the risk of people contracting COVID-19 when they come in contact with an infected person. The reality is that whenever people gather near others there is a risk of contracting COVID-19. That risk increases if people are:

- Closer than 6 feet apart.
- Not masked.
- In close contact repeatedly or for long durations of time.
- Gathering indoors or in an enclosed space.
- In spaces where ventilation is poor.
- Exhalation is of increased force or frequency, such as in exercise, speaking, laughing, singing or shouting.

Hugging and kissing also increase the risk of an infectious person infecting others. The presence of any one of these factors increases the risk of transmission. The presence of more than one factor compounds the risk. The risk of transmission to large numbers of people increases as the number of people in a setting or venue increases, and if there is mixing among people in the setting or venue. Until people are vaccinated, the only way to protect people from contracting COVID-19 is to prevent or mitigate their risk of exposure to people who may be infectious with COVID-19.

Once we understood these well-established conditions that increase the risk of spread, and we confirmed the research with supporting case investigation data, we were able to look at particular settings and activities where the risk of spread is the greatest. That knowledge pointed to bars and restaurants; sports; gyms, fitness centers and similar facilities; entertainment and event venues; and private social gatherings. The significant risk of transmission in these settings and activities is well supported by the published scientific literature. And it is for those reasons that Minnesota, along with multiple other states and countries, took additional action in these settings to bring down surges in case numbers to protect health care systems and to prevent serious illness and death caused by COVID-19.

Case investigations and contract tracing process and significance of outbreaks

When a case of COVID-19 is identified by a test and reported to the Minnesota Department of Health, the case investigation and contact tracing process begins by interviewing the person who has tested positive. The interview collects information about their illness, possible exposures to infectious people in the last 14 days, and the people they have been in contact with while infectious.

Case investigations have evolved over the course of the pandemic in response to conditions at various stages of the pandemic, our knowledge about the virus, and the need for information that would help slow the virus' spread. As a result, the specific questions asked during an investigation interview have changed over time. Initially the interview form provided by the CDC included only a few questions focusing on travel to Wuhan, Hubei, and mainland China; and animal exposures as well as contact with people with confirmed cases of COVID-19. Early interviews also included questions about people's occupations.

In May, after the stay-at-home order ended, interview questions went more in-depth about contact with persons with confirmed cases of COVID-19, travel, and visits to health care settings. Then in mid-May, due to the increase in community transmission, questions were added about community events and large gatherings. In June, the interview questions about social activities were expanded to include questions about attendance at church services, social gatherings, weddings, funerals, restaurants, concerts, sporting events, hair salons, and open-ended questions to capture potential transmission in settings and activities not specifically covered by an interview question.

The case interview questions continued to evolve over the summer as the open-ended questions led case interviewers to begin detecting possible outbreaks associated with sports and gyms, fitness centers, and similar facilities. Specific questions about sports and gyms, fitness centers, and similar facilities were added in late August to improve the accuracy of the information collected about these settings and activities.

There are two important considerations that inform decisions about which questions to include as part of case investigations about specific settings and activities. The first consideration is the risk of virus transmission for specific settings or activities. As noted above, what we know about the virus allows us to identify settings and activities that are more likely to result in spread. The second consideration is whether there is an opportunity for intervention or follow-up based on the information collected. These key case investigation principles have been part of pandemic preparedness and response for more than a decade.

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The data collected during case investigations is regularly reviewed and evaluated to determine if follow-up is needed. MDH conducts follow-up investigations of settings and activities with multiple cases, because of the likelihood that conditions at those settings and activities present a heightened risk for COVID-19 transmission. Decisions to follow up on a particular setting or activity as a situation where transmission of the virus may have happened are based on whether the event meets outbreak thresholds.

Different thresholds were selected to determine if transmission happened or likely happened in association with a setting or activity, based on the level of certainty that the particular activity or setting could be the source of the illnesses. It is easier to assess transmission at an activity with a specific date and time (e.g., a wedding) than at a setting without a specific date and time (e.g., restaurant, gym).

For activities with a specific date and time, when the threshold is reached, MDH is confident that transmission of the disease occurred during the activity. For community settings, a higher threshold was set to determine transmission. When that threshold is reached, it means there are enough cases associated with that setting so that MDH is confident that transmission has occurred in that setting.

Identifying outbreaks has helped the COVID-19 response in two keyways: First, it has provided the opportunity to follow up with settings (restaurants, bars, gyms, hair salons, and event venues) to alert them of high levels of transmission at their establishments and related to their activities, and to encourage their review of their COVID-19 preparedness plans and mitigation strategies. Second, outbreak data has assisted in the detection of types of settings and activities where transmission is occurring and, in many instances, has affirmed that transmission was occurring in settings and activities identified as high risk based on transmission risk factors. This has assisted in decision-making and crafting of guidance necessary to mitigate the risk of transmission by those settings and activities.

Identified outbreaks do not capture every instance of COVID-19 transmission in settings and during activities. The data only captures excessive transmission that meets thresholds for an outbreak on a specific date and time for a specific setting or activity. The data does not capture the total number of cases that could be associated with particular settings and activities. The case counts associated with identified outbreaks are also likely a small subset of all the transmissions that occurred as the result of an outbreak. The use of the high thresholds established for outbreaks results in an underestimation of the number of overall cases that may have occurred in a setting or activity, the number of outbreaks, and the number of identified cases associated with an outbreak.

Of course, the effectiveness of the entire case investigation and contact tracing system relies first and foremost on people getting tested. If they test positive, they must answer their phones when case interviewers call them, and then answer the interview questions accurately and completely. In addition, they must provide enough information about their exposures so the interviewer can accurately identify the setting or activity. The effectiveness of the case investigations and contact tracing process relies on truthful and accurate self-reporting from persons infected with or exposed to the virus. If people do not fully disclose their symptoms, activities, or contacts, then the total number of cases that may have occurred at settings and activities will be underreported and outbreaks will go undetected.

Minnesota public health officials have experienced significant pushback from individuals in their responses to case investigation interview questions and certain communities have actively discouraged testing due to

potential impacts on activities, such as sports. These actions jeopardize public health and contribute to undercounting the full scope of positive cases that may be associated with settings and activities and the number of outbreaks involving those settings and activities. Between June 10, 2020, and Jan. 11, 2021, MDH successfully completed 243,610 case interviews of the 410,129 reported confirmed COVID-19 cases. Thus, it is likely more unreported or undocumented transmission occurred in settings and during activities where the conditions that create risk are present than has been captured through case investigation and contact tracing efforts.

This is also true for outbreaks associated with illnesses besides COVID-19. For example, CDC estimates that for every *Salmonella* case identified through surveillance systems, there are likely about 29 more cases that are not identified. MDH does not yet know what this multiplier is for COVID-19, but the outbreak cases MDH has been able to identify are just the tip of the iceberg.

The high risks of COVID-19 transmission posed by bars and restaurants

Bars and restaurants pose a particularly high risk of COVID-19 transmission. At bars and restaurants, people gather and congregate around tables with people from different households to eat and drink, often for extended periods of time. People cannot remain masked while they are eating and drinking, and many people leave their masks off while talking. Bars and restaurants can be loud, leading to a larger volume of respiratory droplets in the air as people raise their voices to be heard, particularly at tables that seat larger numbers of people. Moreover, both the consumption of alcohol at these establishments and gathering with friends and family from different households can lower inhibitions and interfere with masking and effective social distancing. This is especially true at bars later at night, when people are more prone to moving about and mingling with other customers. All of these factors make bars and restaurants high risk for COVID-19 transmission.

One study that illustrates the easy transmission of COVID-19 in such a setting examined COVID-19 transmission in a bar during a St. Patrick's Day celebration in Vietnam. The study found that it was likely that a single person spread the virus to 18 other people over the course of a single evening, even though only four of the 18 people reported being in close contact with the infectious individual. In another study from South Korea, an outbreak of three cases occurred at a restaurant, including one case who sat 21 feet away from the infector for only five minutes and who had no other contact, as documented by closed circuit television recording.

For more information:

Chau NVV, Hong NTT, Ngoc NM, Thanh TT, Khanh PNQ, Nguyet LA, et al. [Superspreading Event of SARS-CoV-2 Infection at a Bar, Ho Chi Minh City, Vietnam \(https://doi.org/10.3201/eid2701.203480\)](https://doi.org/10.3201/eid2701.203480).

Superspreading event of SARS-CoV-2 infection at a bar, Ho Chi Minh City, Vietnam. *Emerg Infect Dis.* 2021 Jan.

Kwon KS, Park JI, Park YJ, Jung DM, Ryu KW, Lee JH. [Journal of Korean Medical Science, Evidence of Long-Distance Droplet Transmission of SARS-CoV-2 by Direct Air Flow in a Restaurant in Korea \(https://doi.org/10.3346/jkms.2020.35.e415\)](https://doi.org/10.3346/jkms.2020.35.e415). *J Korean Med Sci.* 2020 Nov; 35(46):e415.

Lu J, Gu J, Li K, Xu C, Su W, Lai Z, et al. [COVID-19 Outbreak Associated with Air Conditioning in Restaurant, Guangzhou, China, 2020 \(https://wwwnc.cdc.gov/eid/article/26/7/20-0764_article\)](https://wwwnc.cdc.gov/eid/article/26/7/20-0764_article). Emerg Infect Dis. 2020 Jul; 26(7):1628-1631. doi: 10.3201/eid2607.200764. Epub 2020 Apr 2. PMID: 32240078; PMCID: PMC7323555.

The substantial health risk posed by the significant number of people gathering in bars and restaurants is real and present in Minnesota. Between June and December, among the people who tested positive and responded to case investigations, 41,081 reported gathering in one or more restaurants in the preceding 14 days. The number of people who tested positive and reported gathering in one or more restaurants in the preceding 14 days doubled between September (5,042) and October (10,115) and nearly tripled in November (14,046). So far for December, the number of people who have tested positive and reported gathering in one or more bars and restaurants in the preceding 14 days is 2,190 (these numbers are assigned to a month based on testing date, so exposure resulting in infection could have been up to 14 days earlier). In addition, from June through December, MDH has conducted 554 investigations of possible outbreaks at bars and restaurants throughout Minnesota, in response to concerns about multiple confirmed cases identified through case interviews who had visited those establishments. Of those, 470 were considered outbreaks involving multiple confirmed cases among customers and employees of bars and restaurants. MDH conducts follow-up investigations of establishments with multiple cases, because of the likelihood that conditions at those establishments present a heightened risk for COVID-19 transmission.

The substantial risk of COVID-19 transmission presented by sports activities and gyms, fitness centers, and similar facilities

Sports and gyms, fitness centers, and similar facilities are activities and settings in which people engage in risky activities that pose a substantial risk of transmission of COVID-19. People in close proximity to one another for the duration of a practice, game, or class, or moving about a facility from one piece of equipment to another exerting themselves and breathing heavily, increases the risk of transmission of COVID-19. Higher levels of exertion and exhalation – particularly by individuals who are not wearing masks – greatly increases the amount of airborne respiratory droplets that can carry COVID-19 in the air and the distance those aerosol droplets can travel. If the facility lacks proper ventilation, that can further amplify exposure among people present in those facilities. Activities in these facilities also often involve handling of equipment and machines, the surfaces of which can be contaminated by infectious people.

Pools present their own unique risks. The risk of COVID-19 transmission increases when people gather without face coverings. According to the CDC, people should not wear wet or saturated face coverings, because they make it harder to breathe and they are also less effective in preventing the spread of COVID-19. In addition, the Minnesota Pool Code requires people to shower prior to entering pools, increasing the amount of time without face coverings for pool users. Further, MDH estimates that lifeguards or other onsite staff monitor only approximately one-third of swimming pools in Minnesota, making it difficult to ensure safeguards are being followed, such as capacity limits and social distancing. These facilities also are often located in, or require the use of locker rooms to change out of and store clothing, which are difficult to monitor effectively, for privacy reasons. This means more people entering, exiting, and gathering in spaces without face coverings and effective oversight.

An example of a study that documented a COVID-19 outbreak traced to fitness studios in South Korea noted that “[t]he moist, warm atmosphere in a sports facility coupled with turbulent air flow generated by intense physical exercise can cause more dense transmission of isolated droplets.” Another study documented that a South Korean fitness center conducting Zumba classes was the locus of a COVID-19 outbreak that resulted in at least 116 COVID-19 cases, including 57 Zumba class participants.

For more information:

Jang S, Han S, Rhee J. [Cluster of Coronavirus Disease Associated with Fitness Dance Classes, South Korea \(https://dx.doi.org/10.3201/eid2608.200633\)](https://dx.doi.org/10.3201/eid2608.200633). Emerg Infect Dis. 2020; 26(8):1917-1920.

Bae S, Kim H, Jung TY, Lim JA, Jo DH, Kang GS, Jeong SH, Choi DK, Kim HJ, Cheon YH, Chun MK, Kim M, Choi S, Chun C, Shin SH, Kim HK, Park YJ, Park O, Kwon HJ. [Epidemiological Characteristics of COVID-19 Outbreak at Fitness Centers in Cheonan, Korea \(https://pubmed.ncbi.nlm.nih.gov/32776726\)](https://pubmed.ncbi.nlm.nih.gov/32776726). J Korean Med Sci. 2020 Aug 10;35(31):e288. doi: 10.3346/jkms.2020.35.e288. PMID: 32776726; PMCID: PMC7416003.

Hamilton, Ontario. [Spinco COVID-19 outbreak, which infected 85 people, is now over \(https://www.cbc.ca/news/canada/hamilton/spinco-outbreak-over-1.5779034\)](https://www.cbc.ca/news/canada/hamilton/spinco-outbreak-over-1.5779034).

The substantial health risk posed by the number of people engaged in sports and activities at gyms, fitness centers, and similar facilities is real and present in Minnesota. In just over three months, among the people who tested positive and responded to case investigations, 5,309 reported engaging in an activity at a gym, fitness center, or similar facility in the preceding 14 days (case investigation questions about engaging in activities at gyms, fitness centers and similar facilities were not included until the end of August and were not asked from November 11 to 30). The number of people who tested positive and reported engaging in an activity at a gym, fitness center, or similar facility in the preceding 14 days peaked in October: September (1,147), October (1,821), and November (1,333). So far in December, the number of people who have tested positive and have reported engaging in an activity at a gym, fitness center, or similar facility in the preceding 14 days is 486 (these numbers are assigned to a month based on testing date, so exposures resulting in infection could have happened up to 14 days earlier). During the time it has been collecting data about gyms, fitness centers, and similar facilities, MDH has conducted 47 COVID-19 outbreak investigations at gyms, fitness centers, and similar facilities in response to case interviews reporting multiple confirmed cases of persons visiting those facilities.

The high risks of COVID-19 transmission posed by venues providing indoor or outdoor events or entertainment

Places of public accommodation providing indoor or outdoor events or entertainment within venues also present serious risks of COVID-19 transmission. Again, this is because these settings involve groups of people that gather together in close proximity for extended periods of time. When indoors, masks are not required when eating or drinking and when outdoors, masks are not required to be worn. Depending on the event or entertainment, people may be drinking alcohol and raising their voices to be heard, shouting, singing, and laughing. Events may also result in physical exertion, including dancing at a wedding. All these

risk factors present a fertile environment for the easy transmission of COVID-19 from person to person and household to household. Moreover, the larger the gathering of people, the greater likelihood that infectious people are present at the venue and the greater number of people at risk for exposure to those infectious people. Finally, in large gatherings, it is harder to enforce and ensure adherence to masking, social distancing, and other health and safety precautions.

An example of the risk posed by events occurred in the county of Heinsberg, Germany. Heinsberg became the center of the COVID-19 epidemic in Germany after a large number of people took part in a traditional carnival. One study of the infection rate stemming from this event found that 15.5% of the 919 individuals evaluated in the study tested positive for COVID-19, which was a rate of infection “Five-fold higher than the number officially reported cases for this community (3.1%).”

For more information:

Bae S, Kim H, Jung TY, Lim JA, Jo DH, Kang GS, Jeong SH, Choi DK, Kim HJ, Cheon YH, Chun MK, Kim M, Choi S, Chun C, Shin SH, Kim HK, Park YJ, Park O, Kwon HJ. [Epidemiological Characteristics of COVID-19 Outbreak at Fitness Centers in Cheonan, Korea \(https://pubmed.ncbi.nlm.nih.gov/32776726\)](https://pubmed.ncbi.nlm.nih.gov/32776726). J Korean Med Sci. 2020 Aug 10;35(31):e288. doi: 10.3346/jkms.2020.35.e288. PMID: 32776726; PMCID: PMC7416003.

Hendrik Streeck, et al., [Infection Fatality Rate of SARS-CoV-2 Infection in a German Community with a Super-Spreading Event \(https://doi.org/10.1038/s41467-020-19509-y\)](https://doi.org/10.1038/s41467-020-19509-y). Nature Communications (Nov. 2020). Streeck, H., Schulte, B., Kümmerer, B.M. et al. Infection fatality rate of SARS-CoV2 in a super-spreading event in Germany. Nat Commun 11, 5829 (2020).

These risks are real and present in Minnesota. Between June and December, among the people who tested positive and responded to a case investigation and contact tracing call, 15,182 people reported gathering at an event in the preceding 14 days, including festivals, sporting events, concerts, weddings, funerals, block parties, and other types of events and entertainment.

The number of people who tested positive and reported gathering at such events more than doubled from 1,942 in September to 3,737 in October and 4,492 in November. So far in December, the number of people who have tested positive and reported gathering at an event is 1,132 (these numbers are assigned to a month based on testing date, so exposures resulting in infection could have happened up to 14 days earlier). MDH has conducted outbreak investigations in response to case interviews that reported multiple confirmed cases that attended particular events and has traced 484 outbreaks to these events.

Similar actions in other states and countries

Many states and countries have recognized that bars and restaurants, sports activities, gyms, fitness centers, and similar facilities, and event venues are high-risk settings for COVID-19 transmission and have required that they implement safety precautions to reduce that risk. Safety precautions include requiring social distancing, wearing of face coverings, practicing hand-hygiene, the institution of regular cleaning and disinfection, and limiting their occupancy and indoor activities. When confronted with surges in cases and

test positivity rates, many local and state governments and countries, like Minnesota, have taken further action to temporarily close or further restrict these setting and activities. Recently in response to surges, seven states have placed restrictions on indoor dining and 16 states have closed indoor bar service.

For more information:

State Actions to Mitigate the Spread of COVID-19, accessed on 12/21/2020, [State Actions to Mitigate the Spread of COVID-19 \(https://www.kff.org/other/state-indicator/state-actions-to-mitigate-the-spread-of-covid-19/\)](https://www.kff.org/other/state-indicator/state-actions-to-mitigate-the-spread-of-covid-19/).

Six states (or counties within states) have placed restrictions (including wider social distance requirements) or reservation requirements on, or limited capacity for gyms, fitness centers, and similar facilities. Eight states have placed restrictions on event venues, such as museums, night clubs, movie theaters, bowling alleys, and performance venues. When addressing surges in cases, some states have taken additional steps, such as overnight curfews or stay-at-home orders (e.g., California, Massachusetts, North Carolina, Ohio, Puerto Rico, and Virginia); stay-at-home advisories (e.g., Kentucky, New Mexico, Pennsylvania, Wisconsin); indoor service and/or curfews for restaurants and bars (e.g., Maryland, Massachusetts, Montana, New York, North Dakota), social gathering bans (e.g., California, Illinois, Rhode Island, Vermont, Washington), or mandatory quarantine for some or all travelers (e.g., Alaska, Connecticut, Hawaii, Nebraska [international], New Hampshire, New Mexico, New York, Pennsylvania, Rhode Island, Vermont). These numbers do not include additional action take by local governments.

For more information:

[State Actions to Mitigate the Spread of COVID-19 \(https://www.kff.org/other/state-indicator/state-actions-to-mitigate-the-spread-of-covid-19/\)](https://www.kff.org/other/state-indicator/state-actions-to-mitigate-the-spread-of-covid-19/), accessed on 12/21/2020.

[New York Times Coronavirus Restrictions and Mask Mandates for all 50 States \(https://www.nytimes.com/interactive/2020/us/states-reopen-map-coronavirus.html\)](https://www.nytimes.com/interactive/2020/us/states-reopen-map-coronavirus.html), accessed on 12/21/2020.

Some countries, such as the Czech Republic, Denmark, France, Germany, Greece, Italy, Portugal, South Africa, Spain, Turkey, and the United Kingdom have implemented similar restrictions (e.g., overnight curfews, social gathering limits, stay at home orders); many re-implemented them during the holiday season in an attempt to limit case growth.

Conclusion

Governor Walz’s Emergency Executive Orders 20-99 and 20-103 were intended to halt the exponential growth of COVID-19 cases and rapidly bring the numbers down to protect public health and our health care system. These actions in part included requiring settings that are especially high risk for transmission of COVID-19 from person-to-person and out into the community to temporarily close to the public and then restrict their activities upon reopening. Without such restrictions, the dangerous public health emergency Minnesota is facing would have continued to worsen. With these restrictions, Minnesota’s case rates and

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test positivity rates have begun to come down. From their height at the beginning of November, key pandemic metrics have decreased significantly. As of Jan. 11, 2021, rates of new daily cases had decreased nearly 75%, from roughly 123/100,000 to 32.3/100,000, though still remaining well above the previous spring peak, and test positivity is below 10% for the first time since mid-October, though it is rising (7.5%).

These efforts have provided relief to Minnesota's health care system and workers, and will allow Minnesota's children to return to in-person learning and will prevent unnecessary illness and death in the coming months as we work to get Minnesotans vaccinated and end this pandemic once and for all.



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