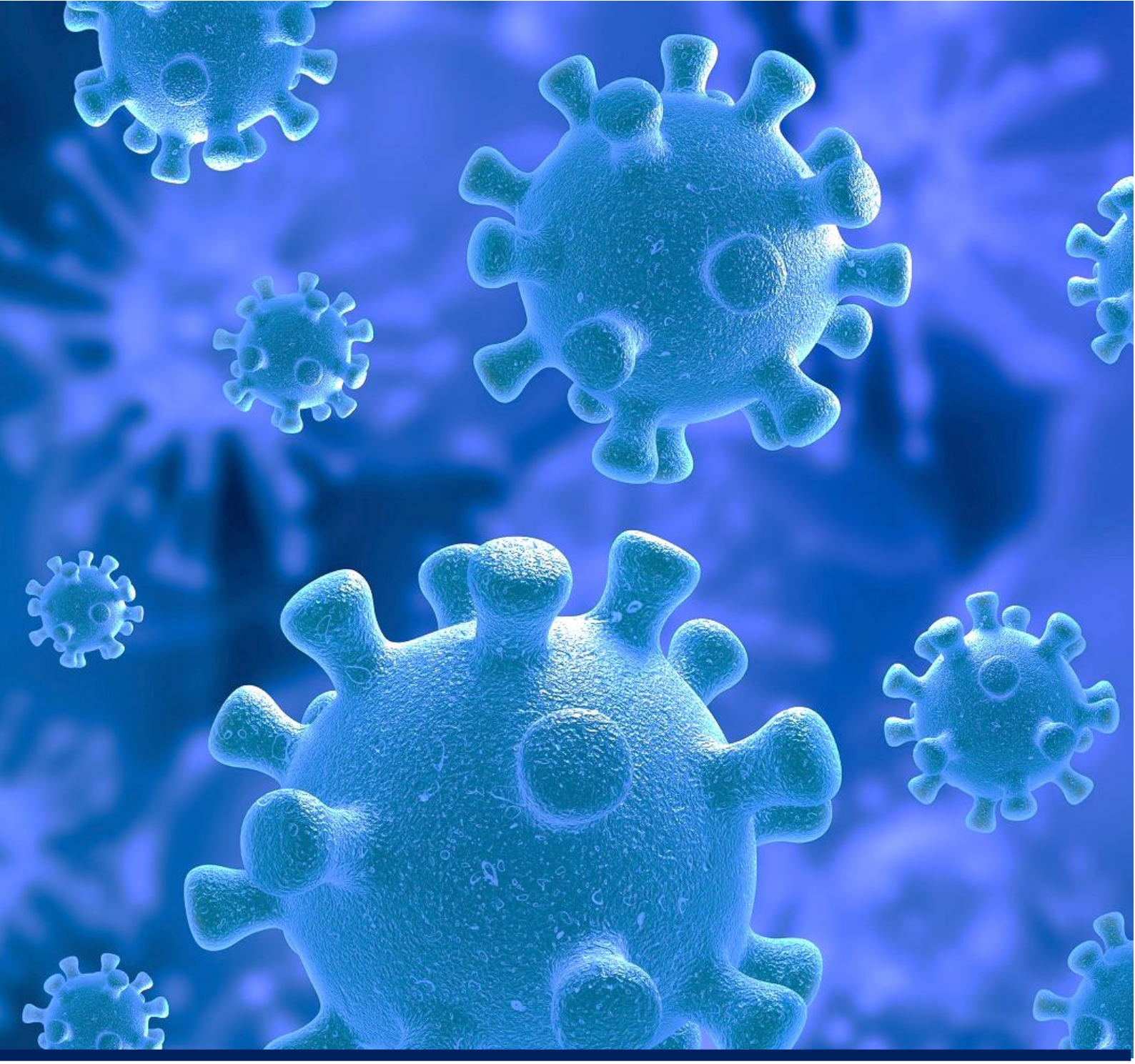
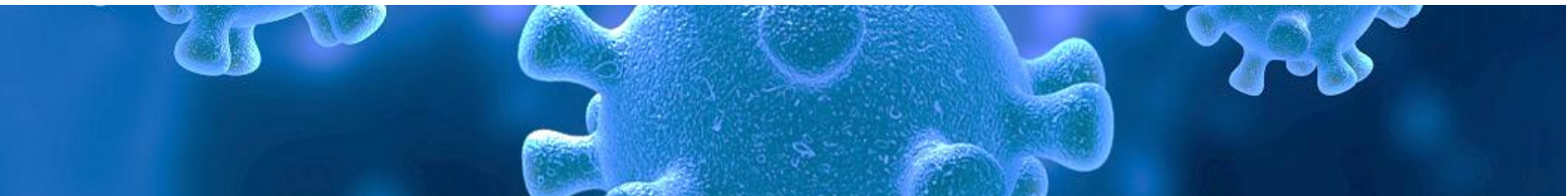


Corporate White Book

Practical guide for the preparation and implementation of the corporate COVID-19 pandemic plan

Prepared by the Mathematical Modelling of Infectious Diseases and Epidemiological Analysis Task Force of the Hungarian Ministry for Innovation and Technology



On behalf of the Hungarian Ministry for Innovation and Technology, State Secretariat for Economic Strategy and Regulation, written by:

Bognár, Bertalan

Bódis, László

Ferenci, Tamás PhD

György, László PhD

Horváth J., Krisztina MD

Komlós, Krisztina

Konyári, Erika

Kovács, Nóra

Nagy, Attila MD

Nagy, Csilla

Oláh, Dániel

Oroszi, Beatrix MD

Röst, Gergely PhD

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Foreword

Prelude

The World Health Organization (WHO) classified the disease COVID-19 caused by the new coronavirus SARS-CoV-2 as a pandemic on 11 March 2020. The new coronavirus, which is transmissible between people, was first identified in China at the end of 2019. SARS-CoV-2 causes respiratory disease that may be asymptomatic or may show mild to severe symptoms. It may lead to death in rare cases, mainly for those with chronic illnesses or advanced age. The spread of the pandemic is accelerating: while the first 1 million cases was registered in 100 days, by late summer 2020 it took only 100 hours to reach 1 million new cases. At the beginning of August, the number of cases was low in Hungary, but the situation was more serious in neighbouring countries.

The daily number of cases identified in most European countries was decreasing from the beginning of April 2020 until the middle of June, at which point the number of COVID-19 cases started to increase again, which may be an early sign of the revival of the pandemic. In some European countries, the number of cases in the middle of the summer approached (Slovakia, the Czech Republic) or exceeded (Serbia, Ukraine, Croatia, Romania) the highest daily number of cases identified in the spring. The number of cases increased some weeks after the countries started to discontinue restrictive measures, and the summer holiday and the tourist season had started in Europe.

The number of cases is expected to increase in autumn and winter, so epidemiological protection measures and prevention are particularly needed. For the functioning of society and the national economy, it would have been beneficial if the long-term, central restrictive measures implemented in the spring could be avoided, but prevention is only possible if everybody contributes. Calculations show that if at least half of the infection transmissions could be prevented through appropriate measures, a major pandemic would be avoidable. Preventing only every tenth infection would still lead to a significantly milder pandemic. Thus, every small step counts that reduces the risk of infection.

Aim of the Corporate White Book

The purpose of this White Book is to assist non-health care enterprises and organisations during preparation for the next phase of the COVID-19 pandemic. This general guidance provides a reference for the assessment of COVID-19 risk of the employees and for planning occupational measures that aim to prevent infection. Questions for consideration by the organisation are highlighted, and support is offered for the preparation of pandemic preparedness plans with unified criteria.

This guide alerts economic entities that the situation arising from the COVID-19 pandemic is expected to exceed the current framework for the management of corporate crises and the provision of operational stability. Therefore, the preparation of specific pandemic preparedness plans is recommended. It is not the objective of the present guide to provide direct methodological support for the maintenance of economic and financial stability. This paper exclusively focuses on epidemiological factors.

It is in the basic interest of economic entities to continuously maintain the production and provision of services during the COVID-19 pandemic. Furthermore, it is in the whole country's best interest to maintain basic domestic production capacity and service systems as well as the provision of critical infrastructure needed for the functioning of the economy and society.

The COVID-19 pandemic may be controlled in Hungary with harmonised planning and the timely implementation of an appropriate combination of individual and collective prevention measures. A disciplined implementation of the measures is crucial, along with appropriate cooperation between employees and other groups of the society.

Who is the audience of the Corporate White Book?

During the COVID-19 pandemic, all economic entities have an essential role in decreasing negative economic and social effects.

Vital entities include institutions and organisations that play a prominent role in ensuring the basic supply and functioning of the society. These critical sectors include health care, the food industry, agriculture, commerce, transportation, electricity production and supply, freshwater supply, waste management, national defence, disaster management, public safety, the government sector and public administration, public transport, communication, the postal services, banks, and the business sector. The appropriate preparations shall be treated as a priority.

This guide offers assistance for continuous and safe operations, which are an essential interest of every small, medium, or large company.

Content

1. Phases of pandemic measures

The present document differentiates four phases of the COVID-19 pandemic.

This White Book refers to the second phase, which is now taking place, and which will last at least one year according to current knowledge.

Phase I – priority: suppression of the pandemic, gaining time

Targets:

- **Drastic restraints to prevent the spread of the COVID-19 pandemic;**
- **Radical reduction on the number of social contacts (people should stay at home if possible);**
- **Slowing the spread of the pandemic;**
- **Increasing testing capacity, isolation of individuals who have symptoms, and isolation of the contacts of those individuals;**
- **Expansion of the capacity of the health care system, preparation to care for people with severe symptoms.**

Conditions for entering Phase II:

— Decreasing numbers of cases, low cumulative (14 days) incidence;
— The health care system is well-prepared;
— Appropriate capacity is available to test all the people who are suspected to be infected by COVID-19 and their close contacts and to strictly monitor the confirmed cases and their close contacts (quarantine).

Phase II – priority: slowing and controlling the spread

Targets:

- **Synchronised and cautious relaxing of strict central measures regarding social distancing;**
- **Reopening schools and companies;**
- **Breaking the chains of transmission with complex measures at the individual level (social distancing, usage of masks, personal hygiene, isolation and quarantine, etc.);**
- **Prevention of cluster infections;**
- **Adoption and acceptance of 'new normal' behaviour;**
- **Fast identification and isolation of COVID-19 cases, contact tracing;**
- **Controlling the spread of SARS-CoV-2, effective response to smaller;**
- **Provision of safe health care services for those who have severe symptoms or who need ventilation.**

Conditions for entering Phase III:

— An effective and safe vaccine is available in sufficiently large quantity;

or

— Medical therapy(ies) are available for the public that can be considered efficient in the prevention of severe or fatal symptoms or for the treatment of patients.

Phase III – priority: suppression of the pandemic

Targets:

- **Organisation of vaccination programmes, establishment of population immunity against the virus, suppression or deceleration of the pandemic (according to the preliminary estimations, it is possible with a 60% vaccination coverage in an otherwise completely susceptible population, but this proportion may increase in the case of a less efficient vaccine);**
- **The treatment of patients at the earliest possible stage to avoid severe symptoms.**

Conditions for entering Phase IV:

— The WHO officially announces the end of the pandemic.

Phase IV – post-pandemic period, restoration is the priority

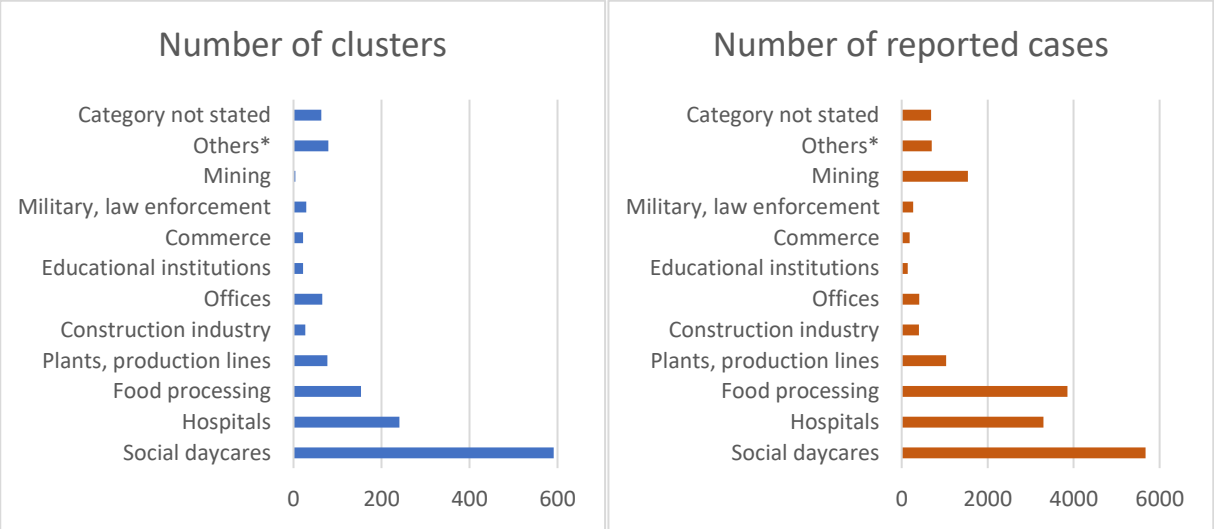
- **Restoration**
- **Assessment of the defence, drawing conclusions, learning;**
- **Preparation for planning the next pandemic;**
- **Implementing developments to suppress the next possible pandemic.**

2. What did we learn about the outbreaks in occupational settings during the first wave of the pandemic?

COVID-19 clusters and outbreaks in occupational settings and the arising epidemiological experience in EU/EEA countries and the United Kingdom during the first wave

The European Centre for Disease Prevention and Control carried out a survey in June 2020 to summarise the experience of outbreaks in occupational settings. Seventeen[1] of the invited 30 countries took part in the research. During the first wave of the pandemic, there were 1,377 clusters or outbreaks in occupational settings in the 17 responding countries, and these clusters affected 18,198 people.

Reported COVID-19 clusters in different occupational settings from March 2020 until the end of June (data from 13 EU/EEA countries and the United Kingdom that provided detailed information in the survey). Source: European Centre for Disease Prevention and Control (ECDC). COVID-19 Clusters and Outbreaks in Occupational Settings in the EU/EEA and the UK; Technical Report. 11 August 2020; ECDC: Stockholm, Sweden, 2020.



**Others: postal services, traffic, bars and restaurants, church and monasteries, fitness clubs, spas*

The research was limited in that only 17 countries provided data out of the 30 countries who were asked to participate. In addition, most of the EU member states implemented central restrictive measures, which affected the probability of clusters (e.g. only a small number of school outbreaks were experienced due to the closure of schools). Moreover, different testing practices must be considered in the evaluation of the results (e.g. most countries ordered the testing of healthy contacts in the health care system; testing activity was also high in retirement homes, while there was less testing done in other sectors). More cases can be identified with greater testing activity.

[1] Countries taking part in the research: Bulgaria, Croatia, Cyprus, Denmark, the Czech Republic, Finland, France, Ireland, Liechtenstein, Latvia, Lithuania, Malta, the Netherlands, Romania, Spain, Sweden, and the United Kingdom.

2. What did we learn about the outbreaks in occupational settings during the first wave of the pandemic?

What risk factors have proven role in the formation of an outbreak in occupational settings?

OFFICE ENVIRONMENT

Spending time in shared offices;

Shared catering facilities;

Meetings held in enclosed rooms with many people;

Visiting venues of entertainment, corporate events.

FOOD INDUSTRY (PROCESSING, PACKAGING), AGRICULTURE

Work carried out in enclosed spaces without appropriate physical distancing;

Workers' hostels;

Shared means of transport;

Employing workers arriving from areas with high disease activity.

CONSTRUCTION INDUSTRY

Workers' hostels (crowding);

Lack of hand hygiene;

Difficulties caused by language barriers in the case of seasonal workers;

Shared means of transport.

COMMERCE

Close contact with customers;

Work carried out in closed spaces;

Shared catering facilities and break rooms;

Meetings held in enclosed rooms;

Shared use of offices;

Shared means of transport.

PLANTS

Shared enclosed rooms;

Work carried out on the same production line;

Shared catering facilities;

Shared use of dressing rooms;

Shared means of transport.

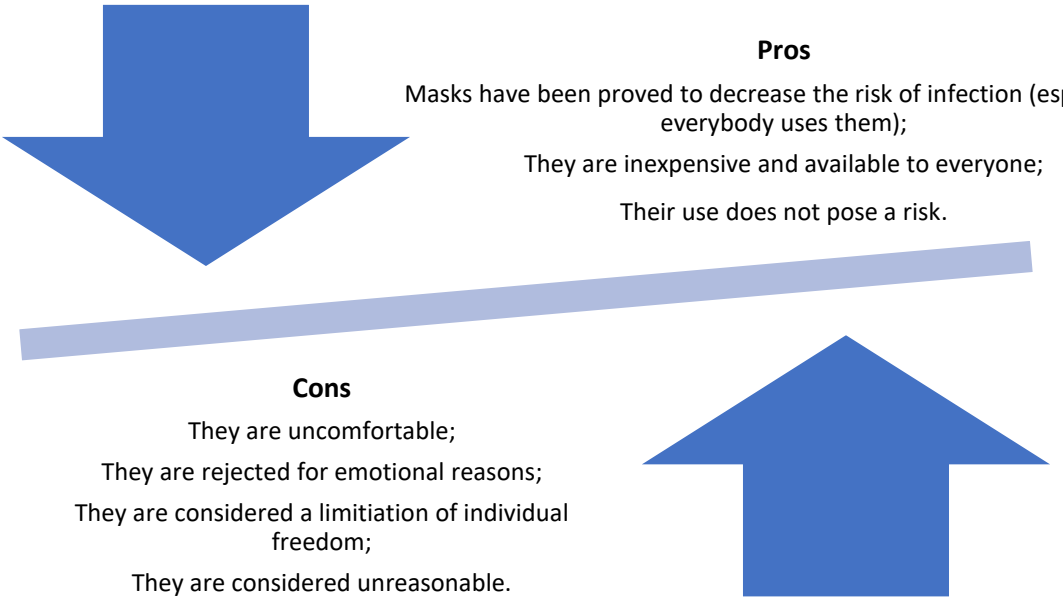
1. **95% of the outbreaks in occupational settings have been reported in closed spaces** (dominant spread is with respiratory droplets, but the generation of aerosols also plays some role);
2. **A lack of appropriate physical distancing** increases the risk of spread;
3. There are workplaces where physical distancing is impossible, as **physical presence at the workplace** or **close contact** during work are unavoidable. The following factors further increase risk:
   - Noisy working environment (shouting);
   - The longer the period of close contact (e.g. long shifts), the greater the risk of spread;
   - Eating and chatting together in closed space;
   - Changing rooms, queuing, community spaces, shared use of toilets, group travel;
   - Inappropriate ventilation of enclosed spaces, movement of air generated by ventilators;
   - Meeting several clients or customers;
   - Workers' hostels, shared means of transport.
4. **The presence of an employee at the workplace who has symptoms, and close contact with such employee without masks is a critical factor.** There can be several reasons why someone does not stay at home when they recognise symptoms of the disease:
   - They do not know or believe that their symptoms (often mild) can be the symptoms of a COVID-19 infection;
   - Even if they do recognise the symptoms, they might not know or believe that other people can get infected. Therefore, staying at home is not considered by the employee, and they do not ask their superiors for time off;
   - They are not allowed to carry out their tasks from home;

- They are afraid of losing their job or facing a reduction in salary, so they keep their symptoms secret (mainly in the cases of a lower socio-economic status);
- Language barrier (in case of seasonal workers).

5. **Non-use or inappropriate use of masks**

- Chu et al. published research results about the protection provided by masks in the journal *The Lancet* (Chu, Derek K., et al. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. The Lancet. 395(10242), 1973-1987). Masks and respirators equipped with filters can decrease the risk of infection, especially the FFP2, FFP3 type masks used in health care, but even non-surgical masks used in community setting decrease the risk of infection significantly.
- At least two factors are necessary for appropriate protection. First, textile, non-surgical masks should be made of multi-layered, water-repellent material and the cut should be appropriate to fit the face perfectly. Second, masks must be used properly, so that the mask covers the nose and mouth. It must be put on and removed cautiously and associated with the appropriate practice of hand hygiene. It is also important that touching the mask while it is being worn should be avoided.

Much controversial information exists concerning the use of masks, and inconsistent communication hinders prevention of the disease.



3.1 Preparation, planning

Checklist

Preparation, planning	
1.	– Establishing an ad hoc task force to coordinate the preparation and planning required for the COVID-19 pandemic (hereinafter referred to as the COVID-19 coordination group). – Assigning a leader or coordinator and delegation of members. – Regulating the operation, the preparation of the order of business, and a work plan.
2.	– Monitoring and implementing information, regulations, and instructions related to the new coronavirus pandemic. – Integrating information originating from the external and internal environment of the organisation into the planning procedures. – Monitoring the epidemiological situation and appointing a coordinator for this task (e.g. the coordinator of the task force). – Convincing partners and employees to support the pandemic preparations. – Establishing a communications network (corporate partners, consumers, authorities, academic partners), starting internal and external communication and the regular exchange of information for the assessment of the epidemiological situation and the appropriate reactions.
3.	– Reviewing the tasks, activities, and resources necessary with consideration for operability. – Evaluating the replaceability of critical human resources. – Defining secondary and tertiary tasks. – Classifying different tasks and activities according to the company's priorities.
4.	– Executing a risk assessment at the individual and organisational levels. – Establishing a work plan to continuously update the risk assessment.
5.	– Monitoring risk mitigation measures at all levels of the hierarchy of a specific company. – Planning the necessary physical modifications, planning the purchase of the necessary protective equipment (e.g. masks) and disinfectants (or material and supplies), investigating alternative sources of supply.
6.	– Planning the measures necessary to inform employees (creation and establishment of appropriate internal communication channels).
7.	– Defining events that trigger the measures included in the plan. (An event triggers the measures when changes in the external or internal environment force the organisation to take steps as a response.)
8.	– Implementing the planning cycle: • Planning, • Implementation, • Control, • Feedback, • Modification of plans, • Periodic audits.

3.1 Preparation, planning

Basic information for planning

Three basic effects of the COVID-19 pandemic shall be considered:

- **Health care:** the COVID-19 disease spreads contagiously among susceptible populations. About one-fifth of patients need health care services, and about 0.6% of the infected die (this rate is higher among patients having chronic diseases and people at an old age). In the case of a major pandemic, the mortality rate may significantly exceed that of previous years. The defence against the pandemic may have significant indirect negative effects itself: for example, screening or vaccination programmes may be stopped, the treatment of patients having other illnesses may be cancelled or postponed.
- **Social:** the mobility of the population changes (e.g. due to central restrictive measures, or quarantine). These restrictions affect mental health as well; the number of suicides and family conflicts may increase. In the case of a major pandemic, the provision of services, production, and the operation of the infrastructure may be disrupted.
- **Economic:** The production side of the gross domestic product may decrease due to the loss of workforce (e.g. due to illnesses, quarantine, and the closure of schools) and the disruption of supply chains. At the same time, reduction in contacts decreases the consumption. The operation of enterprises and the provision of services may be disrupted, and production may decrease. The unemployment rate will increase.

During preparation, it is important to consider and plan how to prevent the above-mentioned damages, or at least how to minimise it.

Planning framework

COVID-19 PREPARATION AND MANAGEMENT – OVERVIEW OF THE CHECKLIST

	Preparation and planning	Health and safety of employees	Business continuity
Multimodal implementation Clearly worded measures; Training and preparation; Monitoring and feedback; Posting reminders, communication; Adopting 'new normal' in the institutional culture.	Establishing a task force, assigning a coordinator; Executing risk assessment, defining employees and positions that require increased protection; Developing risk mitigation intervention packages; Developing and execution preparation plans.	Reducing the risk of transmission; Supporting ill and quarantined employees; Ensuring that governmental measures are followed.	Redesigning internal and external processes based on possible pandemic scenarios; Defining and enhancing the protection of key processes for business continuity; Preparation for dealing with absences.

3.1 Preparation, planning

The COVID-19 pandemic and its possible effect on workplaces

COVID-19 affects several areas of life, including travel, commerce, tourism, education, food supply, and financial markets.

Despite the current intensive research, the availability of an effective and safe vaccine is not expected in large quantities before the middle of 2021. Until this time, the spread of the infection can be halted by observing epidemiological rules and restrictions.

Beyond the implementation of special epidemiological measures, companies and workplaces should be prepared for:

- Changes in the needs of consumers (the demand for certain products will increase or decrease);
- Changes in customer habits (e.g. the spread of home delivery, less frequent purchases made in larger amounts, off-peak shopping, the spread of online shops);
- Uncertainty of suppliers;
- Possible lack of supplies;
- Risk of business travels abroad;
- Late arrival of orders;
- Changing epidemiological measures, and possible closures;
- Employees' unexpected absence due to illness;
- Cluster infections at the workplace.

Preparation of the corporate pandemic plan

It is the task of the company's manager to establish an ad hoc task force to coordinate the preparation and planning required for the COVID-19 pandemic (hereinafter referred to as the COVID-19 coordination group) and to appoint a leader/coordinator. It should be ensured that all the key functions of the organisation are represented in the group (central administration, human resources management, communication, occupational health, etc.).

Tasks of the COVID-19 coordination group:

1. Developing preparedness and action plans;
2. Preparing a risk assessment;
3. Preparing the implementation of necessary measures, and organising their implementation to achieve the appropriate status of preparedness;
4. Organising education and training programmes;
5. Supporting and directing communication;
6. Monitoring and feedback.

During the preparation of the pandemic plan, the scope of the preparedness plan should be defined (*To whom does it apply? To all the employees of the economic entity, or also to the contractual employees and the family members of the employees, the customers, clients, and partners as well? etc.).* Introducing an intra-organisational system of managing and controlling the pandemic is recommended. Risk assessment should be carried out both at the level of individuals and the organisation, and it must be updated if necessary. The tasks, responsible people, and deadlines must be set forth regarding the preparation, the prevention, the implementation, and the restoration. The person or party responsible for decisions about the implementation of the measures included in the pandemic plan must be made known, as well as the information needed to make such decisions. The necessary resources must be ensured (e.g. equipment necessary for hand hygiene).

In addition to the above, it is the task of the COVID-19 coordination group to harmonise the pandemic plan of the economic entity with the state's decisions and central instructions. During the preparation period, great emphasis must be placed on education, the testing and practising of

measures included in the plan, getting the measures accepted by employees, and building the trust of partners and clients.

If the company has more than one site, the head of the sites shall be allowed to adapt the plan according to the local circumstances, and decide on measures accordingly to prevent COVID-19 infection.

The checklist for preparation of the pandemic plan can be found at the beginning of each chapter.

Risk assessment

Risk assessment, the formalised procedure that assesses risks and threats, should be integrated into decision-making during the COVID-19 pandemic. Executing a risk assessment (at both the individual and organisational levels) is an important starting point in preparation for a pandemic wave.

Two factors define the risk of COVID-19 at an individual level: **the probability of infection** and **the probability of severe outcome in the case of an infection**.

PROBABILITY – SARS-CoV-2 is mainly transmitted from human to human during a long-term (at least 15 minutes long) direct contact (within a distance of 1.5 m). It is evident from the investigations of the chains of transmission that the risk of infection is highest among those living in the same household, those who travel or eat with others, and those who spend more time in a closed space with others without observing a 1.5 m interpersonal distance. There are events and locations where the risk of spreading of COVID-19 is especially high, because with the presence of an appropriate source of infection a so-called super-spreader event can be established. Some examples include crowded events, especially if they are associated with singing (e.g. religious events, rehearsal of choruses), shouting due to loud noise, group sporting activities carried out in enclosed spaces, crowded entertainment venues, large family occasions, meetings held in a closed space, etc. Events held in open spaces or where the number of close contacts between participants is low are considered safer. It must be noted however that low risk does not mean zero risk.

The formation of an institutional/corporate or communal outbreak can be a severe consequence of the increased transmission of the infection. A company whose employees travel a lot may spread the virus over a larger territory. Consequences increase if the organisation contacts a lot of clients, partners, or customers every day, as they can transmit the infection to a wider range of people.

SEVERITY – It cannot be predicted whether the symptoms of an infected person will be severe or not, but there are two factors that increase the probability of severe symptoms: advanced age and certain illnesses (e.g. chronic cardiovascular disease).

Example for the course of **risk assessment at the level of individuals**: The probability of X.Y. customer service representative's infection is high, as he has several direct contacts at his workplace (the risk is increased if he carries out his work without wearing a mask or observing the preventive rules of hand hygiene), and especially because the community transmission of the virus is considered significant in the location of the customer service office. The employee is 62 years old and he has diabetes and high blood pressure, so the probability of severe symptoms is high in his case. Overall assessment: the individual risk is the highest, as both the probability of the infection and the severity of the consequences are high.

V.Z. works in the business analysis department and has a medium number of contacts. She observes the individual preventive rules, and transmission of the disease within the community is considered low in the territory of his office. The probability of infection is low. The employee is 32 years old, is healthy and she engages in sports regularly. The probability of severe symptoms is low. Cumulative assessment: individual risk is low.

It is the task of the occupational health service to carry out the individual risk assessment.

The risk may be defined at an institutional level as well: one of the factors is the probability of an outbreak of COVID-19 at the company. The other factor is impact of the high number of COVID-19 infections and the consequential measures on the operation of the organisation (in addition to the loss of workforce due to infections, the 14-day quarantine of close contacts has to be considered as well).

Example of institutional risk assessment: A.B., head of a department, experienced mild symptoms compatible with COVID-19 at her workplace. The employee noticed the appearance of symptoms and she immediately isolated herself, so the risk of transmitting the infection afterwards is low. However, the infection can be transmitted easily before the appearance of symptoms (the infectious period can begin 48 hours before the appearance of the symptoms) and A.B., as head of a department, had a lot of close contacts, and she stayed mainly in closed spaces. The 14 days' quarantine of those who were in contact with her directly without the use of a mask does not pose a dramatic disruption to the operation, as they could carry out their tasks from home as well. In an overall assessment, the probability of pandemic spread is medium in this case, the effect of the pandemic on the operation is mild.

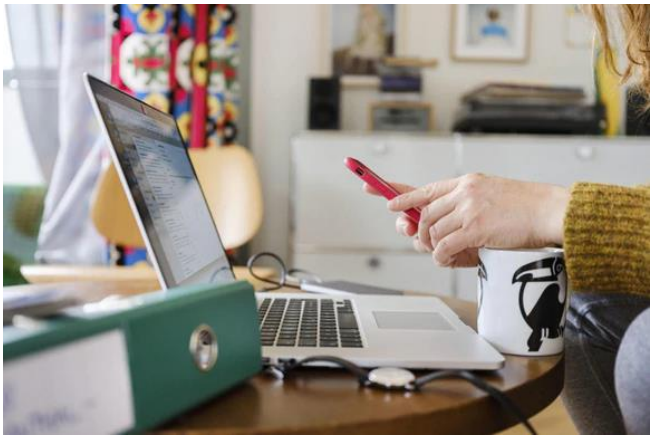
To evaluate the severity of the potential consequences, the effect of the spread of COVID-19 within an organisation on operation, the employees and their families, and the wider community should be considered.

There are many proven and effective methods for reducing risk, and their combined implementation is expected to bring the best results.

RISK MITIGATION MEASURES – measures that can substantially decrease the probability of transmitting the infection and the severity of the consequences. Even if a company has several procedures that pose a high risk considering COVID-19 due to its features and its business process, it can still lower its risk with targeted risk mitigation measures. It should be noted that if no substantial mitigation of risk is possible due to the nature of the organisation, and the socio-economic effects of the temporary closure of the business are not catastrophic, it is worthwhile to consider the temporary cessation of the operation in a more severe epidemiological situation to prevent the escalation of the pandemic.

Is working from home (home office) the only solution that can mitigate the risk?

A home office is an effective method for reducing the number of workplace contacts.



According to a survey, 25% of the working population of the United States (about 35.6 million people) have jobs that can be done remotely from home, for instance, jobs in technology, administration, finance, and engineering. However, the remaining 75% are employed in fields in which it is difficult or impossible to work from home, such as health care, production, food processing, or food supply. Thus, the home office is not a real possibility for the majority of employees.

Based on the 75% rate in the USA, for the 2,034,400 (2019) employees in Hungary, 1.5 million are at high risk, and low-income earners are overrepresented in this group.

Beyond making home office possible, it is necessary to implement other measures to protect those who must be physically present at their place of employment. This White Book includes several examples and best practices for a safer working environment.

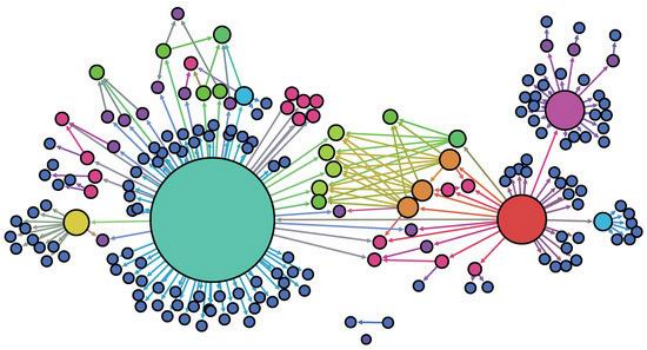
Source: Baker MG. Nonrelocatable Occupations at Increased Risk During Pandemics: United States, 2018. Am J Public Health 2020 August; 110(8):1126–1132.

What does 'super-spreading event' mean?

A person can be considered as a super-spreader if he or she infects a higher number of people than average. The locations of a super-spreading event may be venues of health care, an aeroplane, or a passenger ship, where the virus can be spread in an enclosed space more easily. Super-spreading events may be, mass events held indoors, or choir practice. A super-spreader can be any individual who is infected, discharges the virus (typically without being aware of it, and often in above-average concentration), and who has many close interactions with or direct even contact with other individuals, like a barman or a ticket inspector.

Super-spreading incidents can therefore occur when specific biological, environmental, and behavioural factors coexist.

Super-spreading incidents are particularly characteristic of the new coronavirus. It has been observed that 10% of infected people drive up to 80% of the cases in specific situations. The rest does not transmit the infection or only to one other individual.



Infection transmission graphs showing transmissions between people. The size of the circle is proportional to the number of secondary infections caused by the individual. (Five super-spreaders have been identified in this pandemic outbreak.)

Source: Yunhwan, K, et al. Agent-Based Modeling for Super-Spreading Events: A Case Study of MERS-CoV Transmission Dynamics in the Republic of Korea, Int. J. Environ. Res. Public Health 2018; 15(11):2369 ***https://doi.org/10.3390/ijerph15112369***

The most serious consequence of a super-spreading event may be the sudden, explosive spread of COVID-19 virus in a community.

It is important to note that anyone can be a super-spreader without knowing about it, as the virus is most intensely shed in the period immediately before the onset of symptoms (in the 24-to-48-hour period before the onset of symptoms).

Preventing super-spreading events is a key issue; and it has three following pillars:

(1) Maintaining physical distance,
(2) The use of masks by healthy persons indoors,
(3) Performing extensive polymerase chain reaction (PCR) tests to identify and isolate those infected as early as possible.

To prevent cluster infections, the '3C' strategy has been successfully applied in Japan through an information campaign advising people to avoid the conditions that facilitate to the development of cluster infection, namely

(1) Closed spaces with poor ventilation,
(2) Crowded places,
(3) Close contacts between people.

Image source: http://www.kantei.go.jp/jp/content/000061935.pdf

3.2 Risk reduction, prevention

Checklist

Risk reduction and prevention - protecting the health and safety of employees	
9.	– Enhance personal hygiene. – Continuously provide the requirements to practice proper hand hygiene. – Observe coughing etiquette. – Avoid handshakes and hugs. – Educate, communicate, and post reminder signs.
10.	– Prescribe the usage of (non-medical) masks. – Ensure training for proper mask use.
11.	– The physical distance to be observed is 1.5 m at a minimum. Measures shall be implemented to reduce the number of contacts.
12.	– Use architectural solutions. – Use physical 'barriers' (e.g. plexiglass, booths, painted distance signs). – Ventilate indoors (adequate ventilation is required but avoid the use of fans and air-circulating ventilation; replace air blade hand dryers with paper hand towels). – Use alternative means of access (e.g. restrict elevator use).
13.	– Increase the frequency of cleaning with disinfectant solutions.

14.	– Recommended solutions for the administration and organisation of work:
	  – Work from home (home office),
	  – Move appointments to the online space,
	  – Create contact bubbles at the workplace,
	  – Arrange for flexible working times (in order to avoid, for example, peak times of public transportation traffic),
	  – Minimise the number of people staying indoors, as well as the length of stay (e.g. changing rooms, dining rooms, kitchens).

15.	– Reconsider the necessity of trips, both domestic and foreign, limit their number and duration to the minimum level required. – Provide alternatives to public transportation.
16.	– Support and encourage vaccinations against the flu.
17.	– Isolate the individual and provide medical care in the case of a suspected COVID-19 case at work.
18.	– Encourage employees even with mild symptoms to stay at home.

3.2 Risk reduction, prevention

What are the risks of COVID-19 in the workplace, at the company?

As a general rule, the level of risk is influenced by the intensity of the local transmission of COVID-19 in the particular city or district. If many cases are occurring in the local community, people are more likely to introduce the infection into their workplace or business.

There is also a greater risk of the introduction of COVID-19 if the workplace is visited by many customers who do not work there or who come from areas where the number of COVID-19 cases is high.

Here are some important facts.

1. The COVID-19 is spread via small droplets primarily from coughing, sneezing and laughing, and secondarily from talking, during close interactions between individuals standing within 1.5–2 m of each other. The probability of transmission increases in proportion to the duration of the interaction.

An important problem concerning this disease is that, unfortunately, it is not only the individuals with symptoms who spread the pathogen. On the one hand, some of those infected show only mild symptoms that are easily confused with other common diseases, or may show no symptoms at all. On the other hand, spread of infection is possible before symptoms appear. The incubation period of COVID-19, that is, the time from infection to onset of symptoms, can range from 1 to 14 days, with an average of 5 to 6 days, but it has been observed that the virus is shed from the airways 1 to 2 days before the onset of symptoms.

The possibility of asymptomatic infections has been confirmed in several studies. Recent modelling studies suggest that asymptomatic individuals are one of the main drivers of the transmission.

2. COVID-19 can also be transmitted indirectly by touch. The virus can infect people if they touch contaminated surfaces, and then – involuntarily and subconsciously – touch their eyes, nose, or mouth with unwashed hands.

The virus can remain infectious on plastic and metal surfaces for days.

3. The risk of severe outcome increases with age. Severe COVID-19 cases have been reported mostly in patients 65 years of age or older, and in the presence of immunodeficiency or other underlying conditions.

Though less frequent, serious illness may also occur at a younger age and among those without comorbidity.

4. The spread of COVID-19 is facilitated if employees do not consistently adhere to personal preventive (hygienic) protection measures.

The following questions will help you consider the potential risks for your company.

- Are there surfaces that many employees frequently touch? What about customers? Frequent contact with such surfaces may increase the risk of spread.
- Do employees share tools and equipment?
- Do the physical facilities of the workplace allow employees and customers to wash or disinfect their hands before and after touching surfaces that are frequently contacted?
- Are employees in close contact with clients or other employees during their shift? Are clients in

3.2 Risk reduction, prevention

close contact with other customers? Is the workplace crowded? In a crowded environment, the transmission of infection is more likely.

• Is the workplace indoor or outdoor? Can windows be opened? The risk is higher in poorly ventilated indoor spaces.

• Do you know of an employee who is individually at high risk? Employers may not be aware of the health status of their employees, nor are they necessarily entitled to access this information. Ask the occupational health service for help. Employees may choose to provide confidential information about their health to their employer.

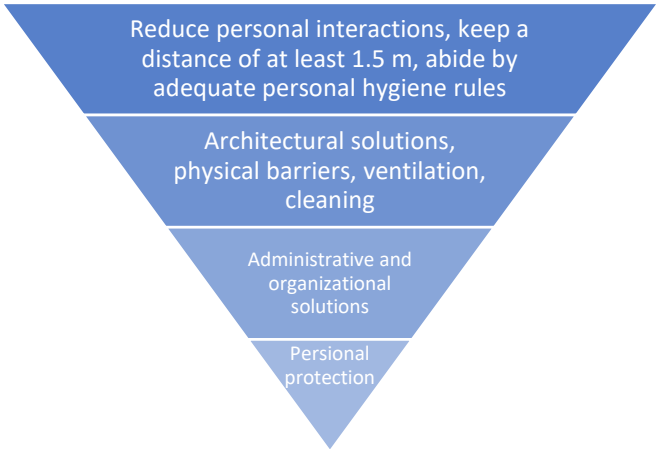
• Are clients and employees able to follow proper hygiene practices such as handwashing, respiratory etiquette, and staying home if they have symptoms? For example, foreign workers who do not speak Hungarian are less likely to be able to follow the rules, and workers who are afraid to lose their jobs are more likely to go to work even when they have symptoms.

• Do employees follow pandemic preventive rules and warn each other about them?

	Place of work	Relationship with customers	Relationship between employees
Low-risk	Working outdoors.	Minimal personal contact with customers.	Working from home, which includes physical separation.
Medium risk	Well-ventilated, enclosed area; windows that can be opened; high-efficiency particulate air (HEPA) filter in the air conditioner.	Interactions with multiple clients are up to 15 minutes in length, wearing a mask is accepted behaviour, physical distance is kept, or separation (e.g. by plexiglass) is available.	Employees work in an airspace at a minimum of 1.5–2 m apart, mask-wearing is regular, there are always the same workers in the shared area.
High-risk	Enclosed area with windows that cannot be opened, low temperature, high humidity and the air conditioner or fan does not filter, just circulates the air.	Many customers and employees crowded in confined spaces. Physical contact with customers.	The staff works close to each other; there is no solution for physical separation; the composition of employees working together varies. Employees close to each other are shouting to communicate because of the noise.

3.2 Risk reduction, prevention

Risk mitigation and prevention measures and their hierarchy



- REDUCE PHYSICAL CONTACT, KEEP A DISTANCE OF AT LEAST 1.5 M, OBSERVE PERSONAL HYGIENE - Wherever possible, the number of contacts at the workplace should be reduced. The work performed at the workplace should be reduced to the minimum level necessary, in particular, work-from-home solutions should be encouraged where possible. Employees should avoid staying indoors at the workplace for long periods and in close proximity of less than 1.5 m. Direct physical contact should be avoided, such as handshakes or hugs. The requirements for proper personal hygiene must be provided, and compliance with personal hygiene standards must be achieved through appropriate communication and reminders.
- ARCHITECTURAL SOLUTION, PHYSICAL BARRIERS, VENTILATION, CLEANING - If reducing physical contact as described above is not possible in all cases, creating physical barriers is recommended wherever possible (e.g. use separate offices, plexiglass, and workstations for the employees).

Reopening of a restaurant with plastic separation panels and physical distance kept in Bangkok, 8 May 2020. Image source: Athit Perawongmetha / Reuters

The barrier must be made of impermeable material and, if necessary, can be improvised – for example, from storage units and partitions – but unstable and hollow objects must be avoided so that they do not pose a risk of displacement, falling, or overturning.

The picture was taken in April 2020 in a poultry meat processing plant. Workers wearing protective masks are standing between plastic compartments set up by the company (Tyson) to protect workers after the coronavirus outbreak. Image source: Tyson Foods via AP.

Adequate natural ventilation and the proper maintenance of air conditioners is recommended, as well as avoiding circulating air ventilation methods such as fans.

3.2 Risk reduction, prevention

- ADMINISTRATIVE AND ORGANIZATIONAL SOLUTIONS – If commuting is unavoidable, preference should be given to individual modes of transportation. Travel to epidemic areas should be avoided, regardless of whether they are for official purposes or recreation. Consider reorganising responsibilities to reduce contact with high-risk and highly protected employees. Setting up small working groups that only come into direct contact with each other (creating smaller 'contact bubbles') is recommended. It is also recommended to take advantage of modern IT opportunities, for example, by using videoconferencing and webinars instead of face-to-face meetings. Employees should be encouraged to stay at home even if they have only mild symptoms.
- PERSONAL PROTECTION – In all cases where it is not possible to maintain a distance of at least 1.5 m indoors, and physical barriers are not continuously available, the use of masks is recommended.

  The use of masks in open spaces is also recommended if physical distancing cannot be maintained in all cases. It is important that the mask is used as intended, including following correct hand hygiene before and after removing the mask; workers must be trained as necessary.

The following is a summary of the proposed personal hygiene rules. It is important to educate employees and keep their knowledge up to date, for example, by posting appropriate information.

- If an infection is suspected, even in the presence of mild symptoms, stay at your home until your recovery is complete.
- When coughing or sneezing, cover your mouth and nose with a tissue or place your nose and mouth inside your elbow. It is recommended that you use a disposable paper handkerchief, and that you throw it away after use in a garbage bag that can be closed. If none is available, place the handkerchief in your bag. After this, do not forget to wash your hands thoroughly or disinfect them with an alcohol solution.
- Wash your hands often with warm water and soap. Wash your hands for at least half a minute and use the recommended steps (see Appendix 6.2). After disinfecting your hands, open and close the bathroom door holding the door handle with a paper towel to maintain hand hygiene. Dispose of the used paper towel in the designated bin. If there is no facility to wash your hands, clean your hands using an alcohol-based hand sanitiser. By implementing the above measures, you can prevent pathogens that are invisible to the naked eye from getting onto objects, and from there onto the hands of others. Handwashing also prevents the transfer of pathogens from your hands to your own face which may lead to infection if the virus reaches the airways.
- Avoid touching your nose, eyes, and mouth. If this is unavoidable, it should be done only after thoroughly washing your hands, or after using an alcohol-based disinfectant solution.
- Wear a mask that covers your nose and mouth, especially indoors, if a distance of at least 1.5–2 m cannot be maintained. Change and clean your mask often. Wash or disinfect hands thoroughly before and after removing your mask.
- Regularly clean frequently used objects and frequently contacted surfaces (tables, door handles, keyboards, etc.).

– Avoid crowded places, especially if they are enclosed areas. Also, avoid noisy places where you can only talk to others by shouting. Keep at least a 1.5 m distance from others.

– Avoid direct contact with other employees at the workplace, such as handshakes, hugs, kisses.

– Avoid prolonged conversations and shared meals in enclosed areas at the workplace, for instance, in kitchenettes, lounges, or changing rooms. It may be in the best interest of the company to post the maximum number of persons who may be inside at a time on the door of the premises.

– Avoid using elevators. If possible, use stairs between floors.

– Ensure frequent ventilation in confined areas. Avoid using air circulation equipment without a filter, such as fans.

A clean work environment

• It is especially important to disinfect surfaces that are frequently touched by hand several times a day, especially those surfaces that are touched by different people, such as door handles, railings, light switches, toilet flushing handles, and elevator push buttons. Physical separator panels should also be disinfected regularly.

• Virucidal disinfectants can be used to disinfect these surfaces.

• Employees should refrain from using shared workstations, telephones, desks, or other work equipment whenever possible.

• Provide an alcohol-based rapid disinfectant (preferably with a contactless dispenser) and disinfectant wipes for employees to disinfect their work environment before each use.

• It is advisable to place disinfectant liquid soap in the dispensers in the bathrooms because they allow hand cleaning and disinfection in one step.

• As part of hand hygiene training, inform employees about the duration (rubbing hands with soap for 20–30 seconds) and the steps of proper handwashing, and when to wash hands. Putting up posters in bathrooms to illustrate the steps of proper handwashing is recommended (Appendix 6.2).

https://www.who.int/images/default-source/health-topics/coronavirus/risk-communications/general-public/protect-yourself/blue-2.png

Maintaining a physical distance

The following is practical advice that enterprises and companies can use to maintain a safe distance between employees to prevent COVID-19 infection:

• Insofar as possible, allow employees to work from home. Support them in this regard, for example, by providing computer equipment and software skills training.

• If you have the opportunity, it is safest to make working hours flexible or introduce remote work. With the introduction of flexible working hours (even in a rotating system), you can change the work schedule and simultaneously limit the number of employees in each work area.

• For scheduling shifts, it is important to keep in mind that whenever possible, the same people should always work together in each shift. This is an implementation of the contact bubble.

• The gist of the contact bubble is to maintain close contact with only a few people and always with the same people (e.g. a permanent, smaller group of employees). Ensure that a distance of 1.5–2 m is maintained with everyone else outside

3.2 Risk reduction, prevention

the bubble and wear a mask consistently if close contact is unavoidable. Mutual agreement is important to maintaining the boundaries of the contact bubbles.

The ideal contact bubble consists of up to 10 people. If someone is assigned to a particular contact bubble, he or she shall not move to another one, thereby limitng the spread of a possible infection.

Image source: iStock

• When applying contact bubbles, it is also important to consider the contact between employees who are changing shifts. If, for example, it is necessary to change clothes and take a shower, it is worthwhile to schedule longer change of shifts, if possible, so that unnecessary contacts can be avoided.

• Increase the physical distance between employees as well as between employees and customers by modifying the workspace (for example, by means of physical barriers or the installation of partitions). Even an empty desk can serve as a physical barrier.

• If you cannot use physical barriers to maintain adequate distance, use signs, ribbons, or other visual cues, such as stickers or coloured tape placed on the floor at least 1.5 to 2 m apart to indicate how much distance employees need to keep from each other.

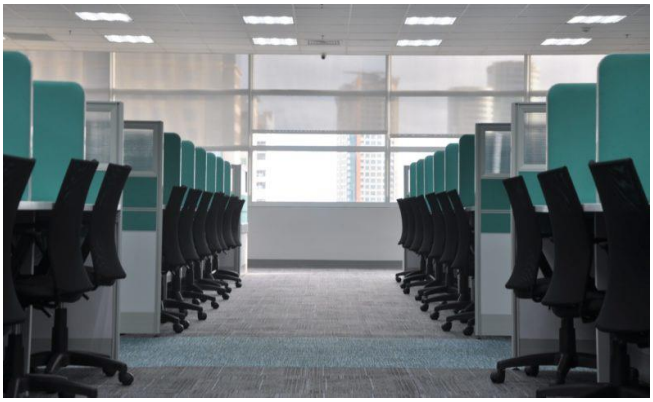


Image source. https://www.zenefits.com/workest/making-your-office-safe-to-return-to-after-coronavirus/

• Opt for flexible negotiations and travel options (e.g. postpone non-essential meetings or events, use online platforms).

• Close community areas at the workplace where employees are likely to gather and have close interactions. Restrict access by determining the number of people allowed to remain in the community area simultaneously.

• Where possible, business communications and services should be provided through channels that support physical distancing, such as telephones or online.

• Modify business practices to reduce close contact with customers.

• If possible, increase the distance between the customer and the cashier by moving the electronic payment terminal or credit card reader further away from the cashier.

• Prioritise solutions that use electronic payments and try to keep the exchange of goods with customers contactless.

Artificial ventilation system of the building

• Where possible, natural ventilation is recommended.

3.2 Risk reduction, prevention

• The aeration system should be centrally controlled, if possible.

• Increase the amount of fresh air supplied (preferably to a minimum of 10 litres/second/person).

• Fresh air supply should be started a few hours earlier than normal work and continued for a few hours after the end of shifts.

• Filters applied at the fresh air intake point of the aeration system can also help reduce the risk of infection. F7–F9 filters are recommended.

• Check that the filter frame is properly sealed and apply airtight sealing on the filter frame as necessary.

• The operational plan for the aeration systems should include the dates of scheduled inspections and maintenance, the name of the person responsible, and the results of the inspections.

• A rotary heat exchanger, and as a general rule, any technical solution that allows communication between used and fresh air branches is epidemiologically risky and should be eliminated, if possible.

Further recommendations for artificially ventilated buildings can be found in the following publication:

https://www.rehva.eu/fileadmin/user_upload/REHVA_COVID-19_guidance_document_V3_03082020.pdf

Air conditioning and air circulation

• Particular attention should be paid to the routine cleaning and replacement of filters. HEPA filters, for instance, have shown especially positive performance in filtering out SARS-CoV-2 virus particles (approximately 70–120 nm) and are therefore used in aircraft and in health care setting.

• Proper ventilation, namely, increasing the number of air exchanges per hour, reduces the risk of spreading infection indoors.

• Direct airflow should be diverted from humans to prevent the spread of pathogens from those who may be infected to those who are physically far away from them.

• Aeration devices that only circulate air and are unsuitable for replacing fresh air indoors, such as fans, split air conditioners, or fan-coil equipment, increase the risk of spreading infection and their use should be avoided.

• Portable air purifiers with a HEPA filter also increase air mixing, thus increasing the risk of infection in the rest of the room. Consequently, portable air purifiers should not be used in a shared office space; they can only be operated in single-person offices near the breathing zone.

Source: ECDC. Heating, ventilation, and air-conditioning systems in the context of COVID-19, 22 June 2020. https://www.ecdc.europa.eu/sites/default/files/documents/Ventilation-in-the-context-of-COVID-19.pdf

Recommissioning of water systems in decommissioned buildings

Recommendations can be found in the following publication:

https://www.norwich.gov.uk/info/20402/support_and_advice_for_businesses/3585/recommissioning_hot_and_cold_water_systems_after_covid-19_closure

Help potentially infected employees to stay at home

• Employers should encourage their employees to stay at home if they are symptomatic, or they happened to be in close contact with a COVID-19 infected person.

3.2 Risk reduction, prevention

• Employees who experience symptoms should notify their supervisors at work and stay at home. Ask them to call for help as soon as possible and follow the instructions of their health care provider. Questions from their general practitioner, attending physician, or emergency physician may confirm or rule out a suspicion of an infection.

• A worker who has been in close contact with a COVID-19-infected person (who has been in contact with him or her for at least 15 minutes and within 2 m) should – even if asymptomatic – notify his or her supervisor at work. The need for epidemiological observation will be communicated to the employee by the epidemiologist from the district or county government office.

Use of masks

• Prescribe and encourage the use of masks, primarily in closed spaces. The application of personal safety measures is particularly important where physical distancing and other measures cannot be maintained. The masks to recommend, and to whom, must be decided according to the type of job.

The use of masks is primarily recommended for protecting those in proximity, as well as the community from infection.

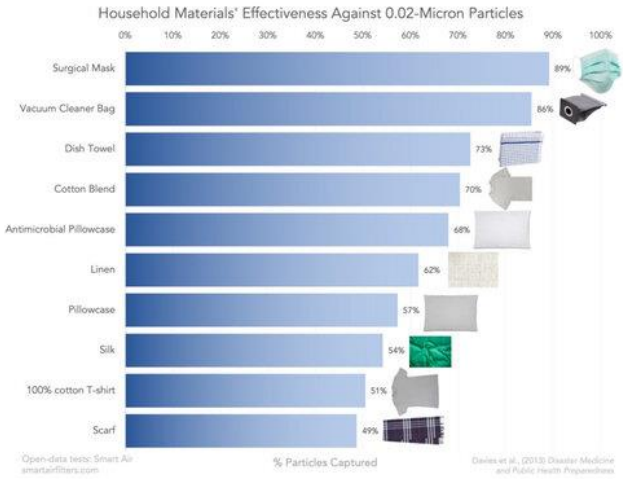


Figure source: Davies A, et al. Testing the efficacy of homemade masks: would they protect in an influenza pandemic? Disaster Med Public Health Prep. 2013 Aug; 7(4):413–418. doi: 10.1017/dmp.2013.43.

Immediately isolate employees who have symptoms at work until their safe return to home or to a hospital is arranged

• Common symptoms of the new type of coronavirus include fever, cough, shortness of breath, muscle aches, fatigue, and breathing difficulties.

• Employees who experience symptoms on arrival at work or become ill during the workday should be immediately isolated from other employees, customers, and visitors and sent home.

• Consider how you can help safely transport an employee who becomes ill at work to their home or to a health care provider.

What should be done if an employee is likely to have been or confirmed to have been infected by SARS-CoV-2?

• If more than seven days have elapsed since the infected employee has been at work, it is sufficient to engage routine cleaning and disinfection practices. If the infected employee has been at work for less than seven days, areas used by him or her for an extended period must be closed for 24 hours before they are cleaned and disinfected. During the 24-hour retaining period, the closed area should be well-ventilated.

• Always clean contaminated surfaces with soapy water before disinfection. Virucidal disinfectants can be used for disinfection in the appropriate concentration and with the applicable action time, in all cases according to the manufacturer's instructions for use in Hungary. Chlorine-containing products can also be used to clean the tiled walls of bathrooms and showers, and the floors of

rooms with chlorine-resistant cladding. The products should be used in the appropriate concentration and with the applicable action time according to the manufacturer's instructions for use in Hungary.

• Determine which employees may have been exposed to infection and take appropriate additional precautions as soon as possible. By observing the proper handling of confidential information, inform employees who may have been in contact with the affected employee.

• The employer should encourage an employee who has been in close contact with a COVID-19 patient (within 1.5 m for at least 15 minutes) to stay at home and, if possible, work from home. An official of the district or regional government office will notify the employee about the need for epidemiological observation.

• An employee who has not been in close contact with a COVID-19 patient should monitor himself or herself for 14 days. If they notice symptoms compatible with COVID-19, they should tell their general practitioner and supervisor at work, and stay at home or start working from home.

Place great emphasis on educating employees and strengthening their commitment

• Keep employees informed of the steps they can take to protect their own health at work and at home. Help them by posting signs, reminders, and posters.

• Encourage employees to comply with newly introduced infection control measures.

If commuting cannot be avoided, support individual modes of transportation rather than public transport where possible

• If possible, encourage employees to use modes of transportation that minimise close contact with others, such as biking or walking. If possible, support employees in this, for example, by setting up a bicycle storage facility.

• If commuting cannot be achieved by individual modes of transportation, encourage and support employees to arrange for those who already work together to commute together in the same car (contact bubble).

• Enable flexible working hours to avoid periods when public transportation vehicles are crowded.

• Ask employees to wash their hands immediately after arrival to work.

Reduce the frequency and duration of trips abroad

• Regularly check the classification of countries at risk by red, yellow, and green, published by the Surgeon General.

• Ensure employees are aware of the symptoms of COVID-19. Before going on a trip, travellers should observe their own state of health. If an employee notices symptoms of COVID-19, he or she should tell their general practitioner and supervisor at work, and stay at home.

• If a worker experiences symptoms compatible with COVID-19 abroad, he or she should contact the local health care provider and avoid contact with others.

3.3 Maintenance of ongoing operations

Checklist

Ensuring continuity of operations during the COVID-19 pandemic	
19.	– Redesign internal and external processes based on possible pandemic scenarios (by creating different scenarios).
20.	– Define and enhance the protection of key processes for business continuity. – Prepare a list of activities that can be deferred. – Prioritize work processes, minimise the number of those present.
21.	– Prepare to deal with absences (for instance, by monitoring and responding to absences at work and creating modalities to deal with those absences). – Implement HR planning for substitution (substitution plans, models, retraining and rotation of employees between different tasks), and assessing the possible involvement of external workforce. – Apply flexibility when granting leave.
22.	– Carry out increased protection of employees at high risk.
23.	– Proposal to strategically reserve essential supplies, raw materials, personal protection equipment, and other equipment. – Find and build alternative supply chains, partners, and markets.
24.	– Establish relationships with health care professionals and epidemiologists who can provide advice on possible health checks and tests (rapid test, PCR) upon entry. – Communicate corporate infection control measures with partners.

3.3 Maintenance of ongoing operations

HR planning and management of possible significant absenteeism

There can be several reasons for absenteeism in an epidemic. The most obvious reason for absence is the sickness of an employee or quarantining for 14 days as a close contact of a known COVID-19 patient. However, someone may also be absent because they need to care for a sick relative or take care of their child due to school closure, or because of grief, exhaustion, fear of infection, or traffic jams. Overall, during the pandemic, the incidence of absenteeism is expected to be much higher than usual, especially around the peak. In severe cases, those who have suffered from the disease may need a long rehabilitation.

• Protecting the health of employees and keeping absences as low as possible is of the utmost importance for business continuity as well.

• During the pandemic, the maintenance of the processes necessary for essential operation, and the temporary suspension and postponement of non-essential tasks may be the key to the survival of the organisation. It is advisable to determine the minimum activities to be maintained during the pandemic and the workforce required for it before the outbreak. It is also recommended to draw up a list of the activities that can be deferred.

• Ensure that the granting of leaves is flexible and in line with public health and epidemiological guidelines. Confirm that the central guidelines also reach employees and that the guidelines are understood.

• A flexible leave-granting strategy should allow employees to stay at home or care for a sick relative or for children who have been forced to stay home due to the closure of school or childcare institutions. If necessary, consider granting special leave to the employee.

• Examine and revise the human resources directives in the company's human resources strategy. Ensure that the strategy and implementation practices are consistent with relevant domestic public health and epidemiological recommendations and guidelines, and with any other applicable legislation.

• Provide opportunities for employees to participate in various programmes (either corporate or external) to manage and cope with increased stress.

Preparation for high infection rates

• Determine how your company will operate if the number of employees staying home due to illness or other reasons (such as caring for a sick relative or for a child) increases.

• Plan to monitor and respond to absences at work, manage absences, and communicate with those who are absent.

Testing

• Workplace nucleic acid-based (PCR) screening has been shown to play an important role in the early detection of COVID-19 and the disruption of workplace transmission chains.

• Different types of tests are available on the market with different quality and prices, and their results are not easy to interpret. If you are considering introducing PCR testing or obtaining rapid tests, be sure to seek the help of a health care professional.

Body temperature screening

• In the event of a pandemic spread, you may decide to check the health of your employees before they enter the workplace. In some countries, body temperature screening is also performed before using certain services. The method can be easily

implemented using digital thermometers. For workplace use, the non-contact version is recommended, both for epidemiological and privacy reasons.

• Our body temperature is normally between 36 and 37 °C. A temperature between 37 and 38 °C is called a slight fever, and a temperature above 38 °C is called a fever. In the case of a slight fever or fever, the screened person should be sent home.

• Several limitations are associated with this method. The accuracy of digital thermometers differs considerably, they can be sensitive to the correct execution of the measurement, and their error limits can be high. Only instruments that have been properly calibrated and recalibrated at regular intervals should be used for measurement. There are also significant individual differences in who is prone to fever; older people, for instance, are less likely to have a fever. If the person has taken an antipyretic, they may easily appear afebrile during the body temperature screening while they are actually sick. Another problem with the method is that fever can be caused not only by COVID-19 but also by many other diseases.

Protection of employees belonging to a risk group

• Develop a strategy and implementation practice for employees at higher risk for severe COVID-19 (older people and those who have a serious underlying medical condition with an increased risk of COVID-19).

• Consider offering employees belonging to a risk group, in consultation with them, tasks that minimise their contact with customers and other employees (such as filling shelves instead of cashier work).

• Support and encourage forms of working from home where possible. Working from home also eliminates the need for employees living in areas with a higher incidence of COVID-19 to travel to their workplaces located in areas less affected by COVID-19, and vice versa.

Communication

• Educate employees based on this White Book and visit the websites stated in Section 5 (Useful Sources of Information) for more up-to-date information. Naturally, education should also be part of the entry process for new employees.

• Inform all employees and customers about the business changes that have been made to prevent and control the spread of COVID-19, and obtain information about compliance with these guidelines and any deficiencies.

• Establish communication channels accessible to all age groups that allow employees to communicate in the event of illness, and where the company can notify employees of possible exposures to COVID-19 infection and closures.

3.3 Maintenance of ongoing operations

Confidence building

• Communicate your efforts to protect against COVID-19 to employees, partners, customers, clients, and others. Ask for their cooperation.

• Share best corporate practices with business partners, chambers of commerce, and associations.

• Provide adequate communication opportunities for employees so that they can voice their concerns and fears anonymously.

Support of influenza vaccinations

The symptoms of influenza and COVID-19 are similar: fever, malaise, pain in extremities, sore throat, and cough. Obtaining definite diagnosis is only possible through laboratory testing.

The possible co-occurrence of COVID-19 and an influenza pandemic can pose a high burden on the company, so encouraging influenza vaccinations in 2020 and 2021 is especially important for protecting employees against at least one pathogen.

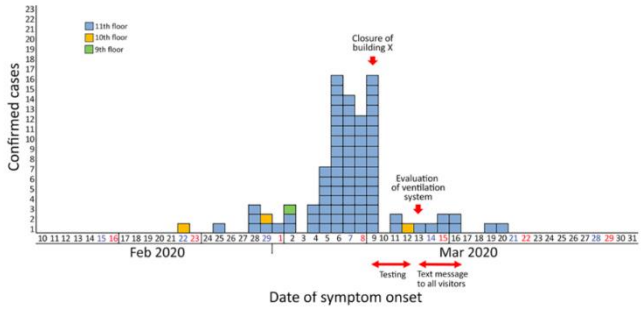
During the recent influenza pandemic in the southern hemisphere, viral activity was low. The strict distancing and personal hygiene measures taken by countries concerned about reducing the spread of the new coronavirus certainly played a part in this.

This is encouraging because consistent adherence to physical distancing, mask use, hand hygiene, and other similar epidemiological precautions will prevent the spread of not only the new coronavirus but also the influenza virus. These measures, and high vaccination coverage against influenza may be sufficient to avoid the extreme burden of a double epidemic.

4. Examples of the spread of COVID-19 at workplaces

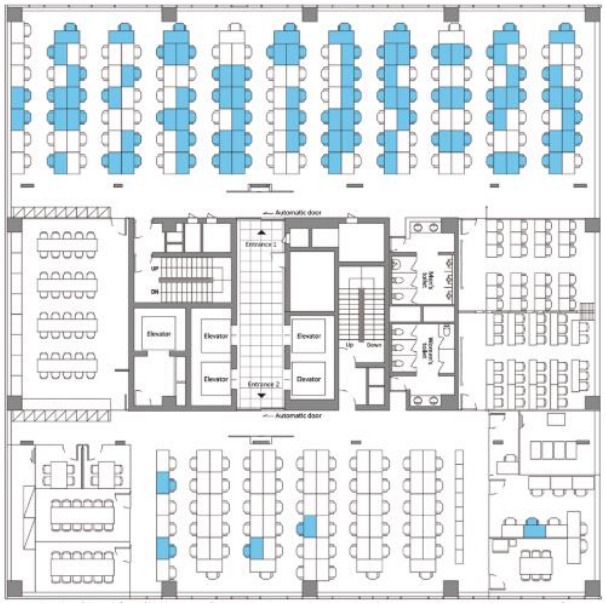
COVID-19 outbreak in a South Korean call centre

An epidemiological investigation at a call centre in Seoul found that 43.5% (94) of the 216 employees working on the 11th floor of the building got infected, indicating a high risk of infection in a crowded indoor work environment. The call centre was located on the 7th, 9th, and 11th floors; it had a total of 811 employees; however, the cases were concentrated on the 11th floor.



Epidemic curve: Number of patients infected by COVID-19 in the call center by date of onset of symptoms, Seoul, South Korea, 2020.

Most of the infected employees sat on the same side of the 11th floor, suggesting an influential effect of physical proximity.



Floor plan of the 11th floor, Seoul, South Korea, 2020. Blue color indicates confirmed COVID-19 cases.

The investigators also concluded that contact duration might have played a key role in the spread of COVID-19 infection, as cases were almost exclusively confined to the 11th floor, even though colleagues working on different floors met in other rooms (e.g. in lifts or lobbies).

Asymptomatic COVID-19 patients may have played a prominent role in the spread of infection. Of the 97 confirmed COVID-19 patients in the study, four (4.1%) remained asymptomatic throughout the 14-day follow-up period.

Several of the family members and close contacts of the sick workers also became infected. A total of 225 contacts were traced in the study, 34 of whom got sick (15.1%).

The epidemiological situation of the call centre was managed as follows:

- The building was closed immediately after the epidemiological situation was reported.
- All employees and residents were tested by PCR (nasopharyngeal sampling). The test results were available after 12 to 24 hours.
- Confirmed COVID-19 patients were isolated and quarantined for 14 days even in the case of a negative result. All cases with positive and negative test results were observed continuously during the 14-day quarantine.
- Close household contacts of confirmed COVID-19 patients were tested and observed for 14 days regardless of the onset of symptoms.

However, in these studies and case reports, it is impossible to make a clear distinction between risk factors, the degree of physical proximity, and the role of direct contact, such as a handshake, touching contaminated objects and surfaces, or exposure to ventilation systems. However, these

studies are a good illustration of the risk of infection in crowded indoor conditions, and they highlight the importance of complex preventive measures.

Source: Park SY, Kim YM, Yi S, Lee S, Na BJ, Kim CB, et al. Coronavirus Disease Outbreak in Call Center, South Korea. Emerg Infect Dis. 2020 Apr 23; 26(8). https://wwwnc.cdc.gov/eid/article/26/8/20-1274_article

COVID-19 outbreaks among employees in U.S. meat and poultry processing plants

According to a weekly report from the Centers for Disease Control and Prevention (CDC) on May 8, 19 states reported a COVID-19 case in a meat processing plant in the United States. Between 9 and 27 April 2020, out of about 130,000 employees in 115 U.S. meat and poultry processing plants, 4,913 got sick, and 20 died. Factors that potentially influence the risk of infection included non-compliance with physical distancing and hygienic measures at work, and crowded living and transportation conditions. Many employees were low income and did not receive paid sick leave, which encouraged them to work while they were sick. In plants experiencing the greatest outbreaks, it was typically not feasible to keep employees at a physical distance of at least 1.5–2 m and/or to use a mask while working.

It is known that people working in crowded workplaces and living in crowded residential areas are at increased risk for the spread of respiratory tract infection. An accumulation of COVID-19 cases has also been observed in long-term care facilities, hospitals for acute care, penitentiary institutions, and homeless shelters.

What conclusions can be drawn for public health practices? A greater emphasis should be placed on physical distancing, hand hygiene, cleaning and disinfection, and improvement of patient admission procedures. Employees should be provided with training materials. These may help prevent the occurrence of COVID-19 in this type of environment, thereby preserving the function of an industry considered as critical infrastructure.

Source: Dyal JW, Grant MP, Broadwater K, et al. COVID-19 Among Workers in Meat and Poultry Processing Facilities — 19 States, April 2020. MMWR Morb Mortal Wkly Rep 2020; 69:557–561.

American hairdressing salon: a positive example

Two hairdressers worked while infected with coronavirus for more than a week in May 2020. The hairdresser salon adhered to the city regulation that the salon could only operate at 25% capacity. Hairdressers maintained a distance of 1.8 m when they were not cutting someone's hair, and both hairdressers and guests wore masks. The two hairdressers cut the hair of 139 clients while infected, and neither the clients nor the other employees got sick.

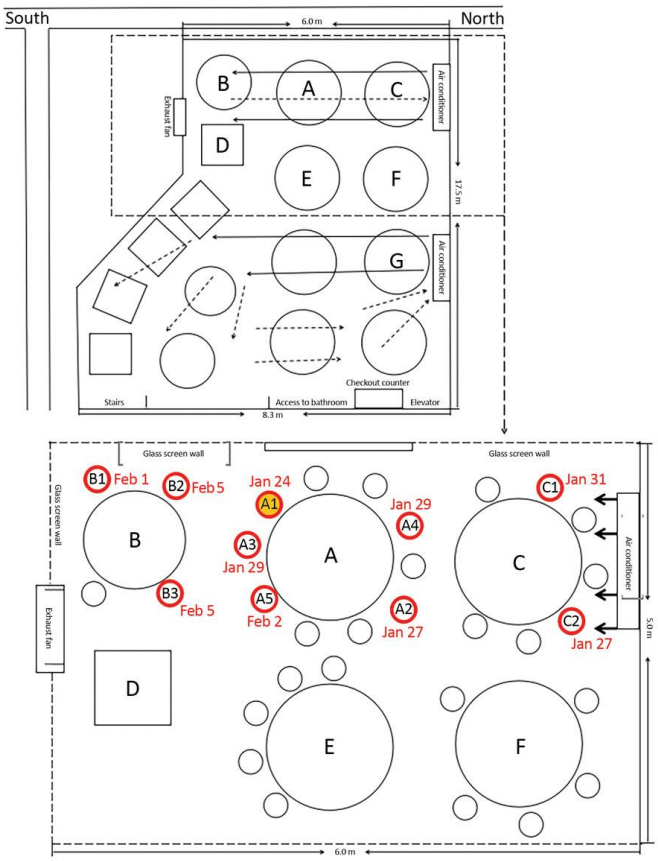
Source: Absence of Apparent Transmission of SARS-CoV-2 from Two Stylists After Exposure at a Hair Salon with a Universal Face Covering Policy — Springfield, Missouri, May 2020, CDC MMR Weekly, July 17, 2020; 69(28):930–932

Chinese restaurant

The family sitting at table A in the following figure arrived in Guangzhou from Wuhan on 23 January 2020 and went to the restaurant the next day. Guest A1 later showed symptoms. There were 83 guests in the restaurant, from which a total of 10 cases were later detected. They all ate in the lane where the air conditioner circulated the air around Table A, and the tables were only one metre apart. Family B and C spent 53 and 73 minutes next to family A, respectively. There were no infections at more distant tables. This case also confirms the well-known fact that someone can be highly contagious before symptoms appear.

In restaurants, when tables are arranged, the direction of the air movement and the appropriate

distance between the tables should also be considered.



Source: Lu J, et al. COVID-19 Outbreak Associated with Air Conditioning in Restaurant, Guangzhou, China, 2020. Emerg Infect Dis. 2020;26(7):1628-1631. https://dx.doi.org/10.3201/eid2607.200764

Swiss hotel

An infected guest arrived at a Swiss hotel where some of the hotel staff wore masks, and others wore plastic face shields. The guest infected several employees (the exact number was not reported), but only infected those who wore face shields with no mask. None of the employees who were wearing a mask got infected. The Swiss authorities issued a warning that face shields alone did not provide adequate protection.

Source: https://www.20min.ch/story/gast-von-angestellten-mit-visier-bedient-angesteckt-204945098457

American fishing vessel

Everyone on a Seattle fishing vessel was tested before the vessel left the port. In three individuals, neutralising antibodies were detected (i.e., they had previously been infected), and no one was found to be actively infected. The vessel went to sea for 16 days, and upon its return, one member of the crew got sick and needed hospital treatment. Everyone was then tested, and 104 of the 122 people on board tested positive.

Genomic analysis suggests that they all became infected on the vessel. Therefore, despite the negative tests, the virus was on board. (At the start someone was probably freshly infected and did not have enough virus in his or her nose and throat for the test to detect the viral nucleic acid.) The three people who had previously been infected did not get infected again, suggesting that they were indeed immune, as 85% of the others got infected. In a closed community, therefore, almost everyone can get infected in a short time.

Source: Addetia A, et al. Neutralizing antibodies correlate with protection from SARS-CoV-2 in humans during a fishery vessel outbreak with high attack rate https://www.medrxiv.org/content/10.1101/2020.08.13.20173161v1.full.pdf

4. Examples of the spread of COVID-19 at workplaces

Korean coffee house

An infectious woman in her 30s visited a South Korean Starbucks coffee house on the evening of 8 August 2020. She did not show symptoms until the next day. She spent about two hours on the second level, during which time she infected 27 other guests, including a child who only went to that level to use the lavatory. These 27 guests later infected 29 more people, so her visit to the coffee house led to 56 new infections.

The coffee house had 50 chairs on the lower level and 80 on the upper level, and the place was ventilated twice a day. Two factors led to the mass infection: first, a very high virus concentration was later measured in the sample of the infectious guest, and second, the air conditioner built into the ceiling spread the virus over a large area. This is a typical example of a super-spreading event. There were four employees working in the coffee house at the time, and they frequently went to the second level to collect the trays and cups and to clean. Despite that, none of them got infected because they wore masks and gloves according to the coffee house's own regulations.

Source: https://news.chosun.com/site/data/html_dir/2020/08/19/2020081904509.html

Fitness studios and gyms

In Cheonan, South Korea, 112 cases were related to fitness dance classes (Zumba). The sources of the infections were the dance teachers, who had previously attended a joint workshop where several people became infected. Later, during the 50-minute sessions, they further infected a total of 52 course participants out of 217. The course participants were all women, with an average age of 42 years. The high number of infections was facilitated by the conditions: the courses were held in closed, poorly ventilated locations, the rooms were crowded, and the air was warm and humid. During intensive exercise and wheezing, infected people spread the virus better. The participants were also physically close to each other, and the eddies caused by their movement helped the infected droplets to spread throughout the room.

Source: Jang S, Han S, Rhee J. Cluster of Coronavirus Disease Associated with Fitness Dance Classes, South Korea. Emerging Infectious Diseases. 2020; 26(8):1917–1920. doi:10.3201/eid2608.200633.

4. Examples of the spread of COVID-19 at workplaces

Norwegian and North American experiences

A study was conducted in Norway on the risk of visiting gyms. There, the gyms reopened on 20 May 2020 with special precautions: physical distancing, increased hygiene and disinfection, keeping shared showers and saunas closed. The study tested 3,000 people, about half of whom visited gyms while the other half did not. A total of one positive case was found, but that person got infected at work. The conclusion of the study was that with appropriate safety measures, gyms did not pose a high risk.

However, during the study period, the circulation of the virus in Norway was extremely low, with virtually no one getting infected from a gym, so this is not conclusive evidence. Generally, it can be said that the risk of each activity also depends largely on the extent to which the virus spreads in the wider community.

In Canada, for instance, 79 people from eight gyms became infected, and 62 of them became infected in the same gym in Alberta.

In the state of Louisiana (USA), five outbreaks originating in gyms were identified, resulting in 31 cases.

Source:

TRAiN study group, M. Bretthauer. Randomized Re-Opening of Training Facilities during the COVID-19 pandemic
https://www.medrxiv.org/content/10.1101/2020.06.24.20138768v2

https://globalnews.ca/news/7261904/coronavirus-canada-public-areas-outbreaks/

https://ldh.la.gov/index.cfm/page/3997

5. Useful sources of information

Follow the information about the new coronavirus regularly

Hungarian information pages

Information page on the coronavirus

https://koronavirus.gov.hu/

Coronavirus publications by National Public Health Center

https://www.nnk.gov.hu/index.php/lakossagi-tajekoztatok/koronavirus

Information material of the Ministry for Innovation and Technology, Department of Occupational Safety and Health on personal protective equipment

http://www.ommf.gov.hu/index.php?akt_menu=505

Websites and guidelines in English

The WHO's novel coronavirus website

https://www.who.int/emergencies/diseases/novel-coronavirus-2019

COVID-19 website of the WHO Regional Office for Europe

https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19

COVID-19 website of the European Centre for Disease Prevention and Control

https://www.ecdc.europa.eu/en/covid-19-pandemic

Recommendations from the Center for Disease Control and Prevention

https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html

https://www.cdc.gov/coronavirus/2019-ncov/community/general-business-faq.html

Recommendations of the Occupational Safety and Health Administration

https://www.osha.gov/Publications/OSHA3990.pdf

Information material of the European Agency for Safety and Health at Work

https://osha.europa.eu/hu/highlights/covid-19-back-workplace-safe-and-healthy-conditions

Guidance for the UK

https://www.gov.uk/guidance/working-safely-during-coronavirus-covid-19

Recommendations of Canada

https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/risk-informed-decision-making-workplaces-businesses-covid-19-pandemic.html

https://www.toronto.ca/wp-content/uploads/2020/03/9538-Fact-Sheet-for-Workplaces-Non-Healthcare_final.pdf

6. Appendix

6.1 Checklist for the pandemic preparation plan

Preparation, planning	
1.	– Establishing an ad hoc task force to coordinate the preparation and planning required for the COVID-19 pandemic (hereinafter referred to as the COVID-19 coordination group). – Assigning a leader or coordinator and delegation of members. – Regulating the operation, the preparation of the order of business, and a work plan.
2.	– Monitoring and implementing information, regulations, and instructions related to the new coronavirus pandemic. – Integrating information originating from the external and internal environment of the organisation into the planning procedures. – Monitoring the epidemiological situation and appointing a coordinator for this task (e.g. the coordinator of the task force). – Convincing partners and employees to support the pandemic preparations. – Establishing a communications network (corporate partners, consumers, authorities, academic partners), starting internal and external communication and the regular exchange of information for the assessment of the epidemiological situation and the appropriate reactions.
3.	– Reviewing the tasks, activities, and resources necessary with consideration for operability. – Evaluating the replaceability of critical human resources. – Defining secondary and tertiary tasks. – Classifying different tasks and activities according to the company's priorities.
4.	– Executing a risk assessment at the individual and organisational levels. – Establishing a work plan to continuously update the risk assessment.
5.	– Monitoring risk mitigation measures at all levels of the hierarchy of a specific company. – Planning the necessary physical modifications, planning the purchase of the necessary protective equipment (e.g. masks) and disinfectants (or material and supplies), investigating alternative sources of supply.
6.	– Planning the measures necessary to inform employees (creation and establishment of appropriate internal communication channels).
7.	– Defining events that trigger the measures included in the plan. (An event triggers the measures when changes in the external or internal environment force the organisation to take steps as a response.)
8.	– Implementing the planning cycle: • Planning, • Implementation, • Control, • Feedback, • Modification of plans, • Periodic audits.
Protecting the health and safety of the employees	

9.	– Enhance personal hygiene. – Continuously provide the requirements to practice proper hand hygiene. – Observe coughing etiquette. – Avoid handshakes and hugs. – Educate, communicate, and post reminder signs.
10.	– Prescribe the usage of (non-medical) masks. – Ensure training for proper mask use.
11.	– The physical distance to be observed is 1.5 m at a minimum. Measures shall be implemented to reduce the number of contacts.
12.	– Use architectural solutions. – Use physical 'barriers' (e.g. plexiglass, booths, painted distance signs). – Ventilate indoors (adequate ventilation is required but avoid the use of fans and air-circulating ventilation; replace air blade hand dryers with paper hand towels). – Use alternative means of access (e.g. restrict elevator use).
13.	– Increase the frequency of cleaning with disinfectant solutions.

14.	– Recommended solutions for the administration and organisation of work:
	  – Work from home (home office),
	  – Move appointments to the online space,
	  – Create contact bubbles at the workplace,
	  – Arrange for flexible working times (in order to avoid, for example, peak times of public transportation traffic),
	  – Minimise the number of people staying indoors, as well as the length of stay (e.g. changing rooms, dining rooms, kitchens).

15.	– Reconsider the necessity of trips, both domestic and foreign, limit their number and duration to the minimum level required. – Provide alternatives to public transportation.
16.	– Support and encourage vaccinations against the flu.
17.	– Isolate the individual and provide medical care in the case of a suspected COVID-19 case at work.
18.	– Encourage employees even with mild symptoms to stay at home.

6.1 Checklist for the pandemic preparation plan

Ensuring continuity of operation during the COVID-19 pandemic	
19.	– Redesign internal and external processes based on possible pandemic scenarios (by creating different scenarios).
20.	– Define and enhance the protection of key processes for business continuity. – Prepare a list of activities that can be deferred. – Prioritize work processes, minimise the number of those present.
21.	– Prepare to deal with absences (for instance, by monitoring and responding to absences at work and creating modalities to deal with those absences). – Implement HR planning for substitution (substitution plans, models, retraining and rotation of employees between different tasks), and assessing the possible involvement of external workforce. – Apply flexibility when granting leave.
22.	– Carry out increased protection of employees at high risk.
23.	– Proposal to strategically reserve essential supplies, raw materials, personal protection equipment, and other equipment. – Find and build alternative supply chains, partners, and markets.
24.	– Establish relationships with health care professionals and epidemiologists who can provide advice on possible health checks and tests (rapid test, PCR) upon entry. – Communicate corporate infection control measures with partners.
Multimodal implementation strategy	
25.	– Stating clearly worded measures; identifying responsibilities and setting deadlines for implementation
26.	– Training and preparation. Defining who needs what type of education, what can be solved with internal resources, and which topics require the involvement of external experts
27.	– Monitoring and feedback. Assessing whether daily practice is in line with the measures, and whether the measures are being implemented well
28.	– Posting reminders and communication. Where possible, displaying promotional materials and posters to reinforce expected patterns of behaviour
29	– Adoption of 'new normal' behaviour patterns in the institutional culture. Leadership commitment is key. Do employees see the importance of a safe work environment? Do employees identify with the protective rules, are they following the rules, and are they involved in creating the new normal rules? Does the organisation have best practices and role models?

6.2 Hand hygiene posters

Posters can be downloaded here:

https://www.cdc.gov/handwashing/when-how-handwashing.html

https://www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf