**IQAir Bulletin: March 2020**

How can IQAir Help in the Fight Against the Novel Coronavirus?

Since the recent outbreak of the novel coronavirus (now named COVID-19) and the *World Health Organisation's (WHO)* classification of the virus as a *Public Health Emergency of International Concern,* the air quality expert IQAir has received a large number of enquiries, asking which role IQAir can play to protect people effectively against the coronavirus and other infections. The main question IQAir has been asked is "Can IQAir help in the fight against the coronavirus?". Below IQAir provides answers to this and other frequently asked questions.
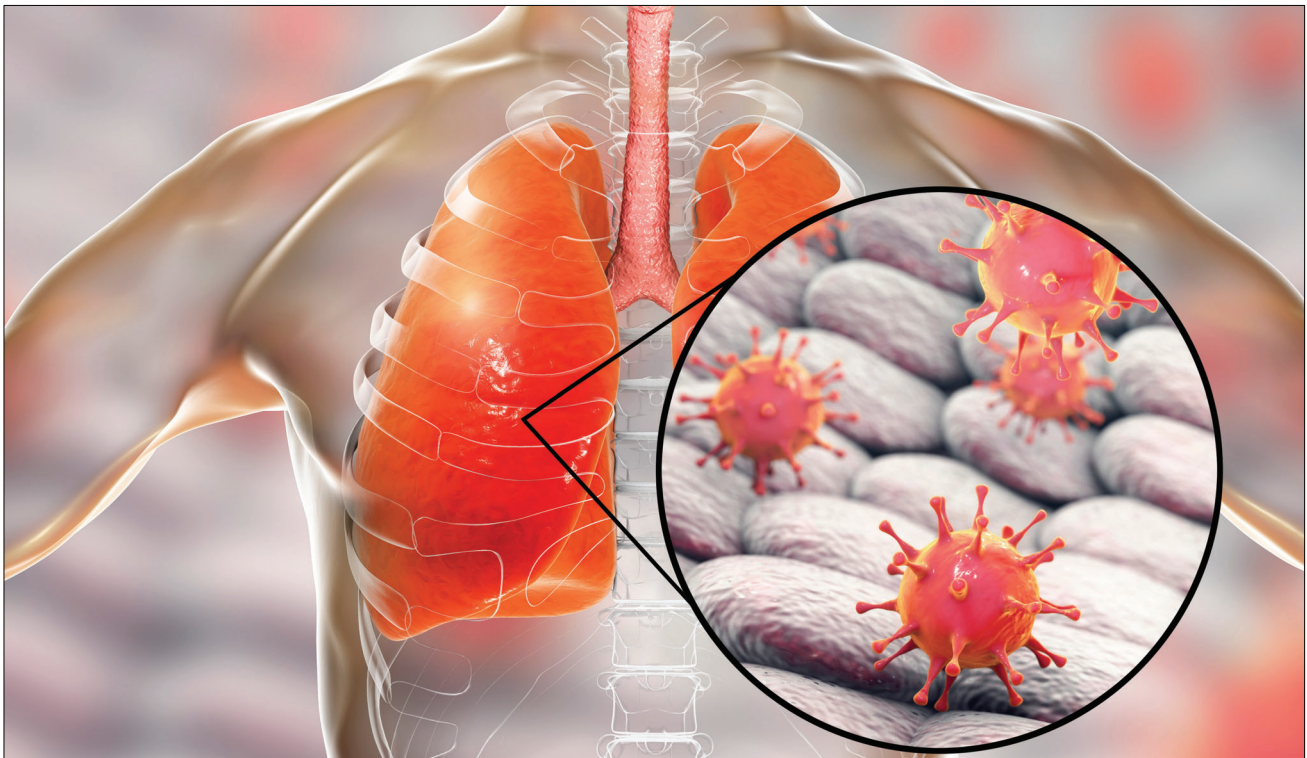
Can IQAir high-efficiency air purifiers capture the coronavirus?
Yes. Every IQAir Cleanroom Series and HealthPro Series air purifier is equipped with a hospital-grade HyperHEPA filter that guarantees a minimum removal efficiency of 99.5% even for the tiniest airborne microorganisms and more than 99.97% effectiveness at 0.3 µm. This includes even particles the size of the coronavirus which has a diameter between 0.08 and 0.12 microns. The efficiency was independently verified by a leading German aerosol test laboratory.

Can ordinary air purifiers capture the coronavirus with a guaranteed efficiency?
No, most ordinary air purifiers are not designed for use in critical healthcare environments and cannot guarantee reliable high-efficiency removal of the smallest microorganisms. The efficiency claims of ordinary air purifiers using synthetic (polypropylene) filters are often *theoretical* marketing claims which have not been independently verified in accordance with standardised filter test norms (such as *EN 1822*) and which do not hold true in challenging real-life situations. Furthermore, efficiency claims are often made only for particles down to 0.3 microns (approx. 3 times larger than the coronavirus) or refer to "best case" results that were achieved only at the lowest fan speed or with a brand-new filter. Especially synthetic HEPA filters can lose more than 50% of their initial efficiency after just a few months of use, resulting in unreliable protection and a false sense of security.

Are IQAir systems actually being used by healthcare institution in the fight against the coronavirus?
Yes. IQAir air purifiers are already assisting healthcare institutions across Asia and in many other parts of the world to protect their staff and patients against infections, including nosocomial infections with high mortality rates. Several hundred IQAir HealthPro and IQAir Cleanroom systems are currently being deployed in healthcare institutions in Hong Kong and China in the fight against SARS-CoV and COVID-19.

https://www.iqair.com/blog/press-releases/iqair-takes-action-against-deadly-coronavirus-outbreak

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What were the most recent deployments of IQAir systems in hospitals?

In January and February 2020 IQAir arranged a number of emergency air freight shipments to Hong Kong including IQAir high-efficiency air purifiers with special *FlexVac* source-capture kit and *OutFlow FlexAir* exhaust attachments (photo). Several hundred of these specialised units with suction and exhaust ducts have been in use in over 150 Hong Kong hospitals and clinics ever since the SARS coronavirus outbreak in 2003. Hospitalised patients with COVID-19 symptoms are instructed to cough and sneeze into the flexible suction duct opening which is positioned next to the patient's head. The air containing the infectious droplet nuclei is then sucked into the system and filtered with high efficiency. Virtually microorganism-free air is expelled through the exhaust duct. The flexible duct at the top of the air purifier can be directed away from the patient, to avoid air turbulences near the patient.

IQAir high-efficiency air purifier with FlexVac mobile source-capture kit.

In which type of medical environments are these IQAir units being deployed?

Healthcare staff is particularly at risk of becoming infected with the coronavirus**. For that reason, the *Hong Kong Hospital Authority* deploys the specialised IQAir systems primarily in rooms where patients under investigation (PUI) are being cared for. The main purpose of the system is to minimise the risk of healthcare workers caring for infected patients, becoming infected themselves. Although the use of personal protective equipment (PPE), such as high-efficiency respirators must always be the first line of defence when entering a room with suspected infected patients, keeping the airborne microorganism count in the ambient air as low as possible can help to further reduce the risk of infectious matter being inhaled or spreading to adjacent areas.

** http://weekly.chinacdc.cn/en/article/id/e53946e2-c6c4-41e9-9a9b-fea8db1a8f51

What are the routes of transmission of the novel coronavirus?

The routes of transmission of the coronavirus have not yet been fully understood. Here is the latest information from the CDC (Centers for Disease Control and Prevention) how COVID-19 spreads:

Current understanding about how the virus that causes coronavirus disease 2019 (COVID-19) spreads is largely based on what is known about similar coronaviruses.

Person-to-person spread
The virus is thought to spread mainly from person-to-person.
- *Between people who are in close contact with one another (within about 6 feet [1.8 metres])*
- *Through respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.*

Can someone spread the virus without being sick?
- *People are thought to be most contagious when they are most symptomatic (the sickest).*
- *Some spread might be possible before people show symptoms; there have been reports of this with this new coronavirus, but this is not thought to be the main way the virus spreads.*

Spread from contact with infected surfaces or objects
It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus spreads.

https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html

Can the coronavirus be transmitted via the airborne route?

That the tiny coronavirus may readily attach to airborne (pollution) particles floating in the air, thus remaining airborne and respirable for longer periods of time, has not been proven, but cannot be excluded at present. Leading health protection agencies including the **European Centre for Disease Prevention and Control** (ECDC) don't rule airborne transmission out. The ECDC recommends *"a cautious approach due to lack of studies excluding this mode of transmission"*.

https://www.ecdc.europa.eu/sites/default/files/documents/nove-coronavirus-infection-prevention-control-patients-healthcare-settings.pdf

What infection control measures are recommended in healthcare settings for rooms with infected patients?

The CDC has issued interim recommendations for hospital rooms occupied by infected patients and persons under investigation (PUI). In addition to *Standard* and *Contact Precautions* the CDC recommends *Airborne Precautions,* which include placement of the patient in an Airborne Infection Isolation Room (AIIR). AIIRs are single patient rooms at negative pressure relative to the surrounding areas, and with a minimum of 6 air changes per hour. Potentially contaminated air from these rooms should ideally be filtered through a high-efficiency particulate air (HEPA) filter before recirculation. The CDC defines "HEPA" as filters capable of removing particles 0.3 micron in diameter with a minimum efficiency of 99.97%.   https://www.cdc.gov/coronavirus/2019-nCoV/hcp/infection-control.html

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Which IQAir models are most suitable for airborne infection control in critical medical environments?
Any IQAir high-efficiency room air purifier model that offers a minimum filtration efficiency ≥ 99.97% for airborne particulates ≥ 0.3 μm or ≥ 99.5% efficiency at MPPS (i.e. the most penetrating particle size) is suitable for airborne infection control in critical medical environments.

Which IQAir models are suitable for airborne infection control in normal home and office environments?
Most IQAir room air purifier models offer high-efficiency of airborne particulates and microorganisms with a minimum efficiency of 99% at 0.3 microns.

Which IQAir models are suitable for airborne infection control in cars, vans and taxis?
In confined spaces such as a car cabin, the effective removal of airborne pathogens and droplet nuclei can be achieved with the Atem Car air purifier which can recirculate the cabin air through its HyperHEPA filter up to 20 times per hour.

Where does the deployment of IQAir high-efficiency air purifiers make most sense?
As long as there is no evidence that COVID-19 spreads through the air, IQAir regards the deployment of IQAir systems in the following applications as most beneficial:

Quarantine & Containment Isolation Rooms for patient under investigation and infected patients:
IQAir Cleanroom or *IQAir HealthPro* (optional accessories: *FlexVac* source-capture kit, *OutFlow* ducting adaptor kit (to generate a negative pressure isolation rooms).

Nursing Homes, Waiting Rooms, Cafeterias, Meeting-, Conference- & Classrooms
IQAir CleanZone SLS (for medium-sized rooms), *IQAir CleanZone 5100* (for larger rooms), *IQAir Cleanroom* or IQAir *HealthPro* (for small and medium-sized rooms).

Homes & Offices
IQAir Atem Desk (for desktop use), *IQAir HealthPro and IQAir GC MultiGas* (for small and medium-sized rooms).

Cars, Vans, Minibuses and Taxis
IQAir Atem Car

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Further Information:

As more studies are being undertaken in connection with COVID-19, more information becomes available on an almost daily basis. Here are some resources from leading health protection organisations around the world which regularly publish updates on the COVID-19 situation:

CDC Summary of coronavirus disease (COVID-2019):
https://www.cdc.gov/coronavirus/2019-nCoV/summary.html

Public Health England: Guidance to educational settings about COVID-19
https://www.gov.uk/government/publications/guidance-to-educational-settings-about-covid-19/guidance-to-educational-settings-about-covid-19

CCDC (Chinese Centre for Disease Control and Prevention) study on the coronavirus based on the analysed of over 70'000 patient records (published February 18, 2020):
http://weekly.chinacdc.cn/en/article/id/e53946e2-c6c4-41e9-9a9b-fea8db1a8f51

WHO Homepage on COVID-2019 outbreak:
https://www.who.int/emergencies/diseases/novel-coronavirus-2019

WHO COVID-19 situation reports:
https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports

WHO COVID-19 situation dashboard
http://who.maps.arcgis.com/apps/opsdashboard/index.html#/c88e37cfc43b4ed3baf977d77e4a0667

WHO COVID-19 advice for the public:
https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

Protect others from getting sick

When coughing and sneezing cover mouth and nose with flexed elbow or tissue

Throw tissue into closed bin immediately after use

Clean hands with alcohol-based hand rub or soap and water after coughing or sneezing and when caring for the sick

World Health Organization

World Health Organization

Helping children cope with stress during the 2019-nCoV outbreak

Children may respond to stress in different ways such as being more clingy, anxious, withdrawing, angry or agitated, bedwetting etc.

Respond to your child's reactions in a supportive way, listen to their concerns and give them extra love and attention.

Children need adults' love and attention during difficult times. Give them extra time and attention.

Remember to listen to your children, speak kindly and reasure them.

If possible, make opportunities for the child to play and relax.

Try and keep children close to their parents and family and avoid separating children and their caregivers to the extent possible. If separation occurs (e.g. hospitalization) ensure regular contact (e.g. via phone) and re-assurance.

Keep to regular routines and schedules as much as possible, or help create new ones in a new environment, including school/learning as well as time for safely playing and relaxing.

Provide facts about what has happened, explain what is going on now and give them clear information about how to reduce their risk of being infected by the disease in words that they can understand depending on their age.

This also includes providing information about what could happen in a re-assuring way (e.g. a family member and/or the child may start not feeling well and may have to go to the hospital for some time so doctors can help them feel better).

About IQAir:

IQAir is a Swiss-based air quality technology group that since 1963, empowers individuals, organisations and communities to breathe cleaner air through information, collaboration and technology solutions. IQAir is a leading manufacturer of high-efficiency air cleaning solutions and air quality monitoring devices and collaborates in international environmental projects such as the United Nation's Environment Programme (UNEP) to raise awareness about air pollution and its health effects.
https://www.unenvironment.org/news-and-stories/press-release/worlds-largest-platform-air-quality-data-launched-tenth-world-urban

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