

Interview with PD Dr. Maren Eggers, virologist and disinfectant specialist, Stuttgart

Antiseptica: What is this virus that is now spreading from China across the world?

It is a new human-pathogenic Corona virus and is called 2019-nCoV. The virus is enveloped, i.e. it has a lipid membrane and can therefore be inactivated by disinfectants. The name Corona virus indicates that a ring of protein structures can be seen under the electron microscope - so-called spikes (= glycolized envelope proteins). So far, 6 human-pathogenic Corona viruses were known, 4 are more likely to cause colds and two are associated with more severe infections such as the pathogen of the SARS pandemic 2002/2003 (SARS stands for Severe Acute Respiratory Syndrome) and the pathogen of Middle East respiratory syndrome (MERS). The new virus is closely related to the latter two viruses, SARS and MERS. This virus is also a zoonosis, i.e. the actual host (reservoir) of the virus is an as yet unidentified animal.

Antiseptica: Where does this virus suddenly come from and how did it get to Europe?

The virus first appeared in Wuhan in early December 2019 and was officially reported on 12/31/2019. The virus was already identified on 7 January this year. This is already a remarkable achievement of the Chinese virologists. The first people to fall ill were all visitors to a fish market in the city of Wuhan, where live wild animals are offered. At these markets, the animals are kept close together and this can lead to a mixing of different corona viruses - similar to influenza viruses. The origin of the 2019-nCoV seems to be a bat, but also a snake at this stage. However, a virus that is able to efficiently infect humans has finally been created. And due to globalisation and our high mobility, be it for professional reasons or simply for the desire to travel, the virus is also coming to Europe. The situation is made more difficult by the fact that in the incubation period of 2-14 days one can already be infectious and thus unwittingly spread the virus.

Antiseptica: Did the WHO initially misjudge the risk situation?

Not from my point of view. The WHO recognised the importance of this infection early on and assessed the situation as very serious. But the situation has not yet been declared a "Public Health Emergency of International Concern" PHEIC, i.e. a global emergency, as most infections have so far occurred in China. The disease causes rather mild symptoms in many people, but about a quarter of the patients fall seriously ill. Most of the deceased suffered from basic health conditions such as high blood pressure, diabetes or cardiovascular disease. The WHO recommends that all countries should have established a rapid diagnostic system so that those suffering from 2019-nCoV can be quickly identified and isolated.

Antiseptica: How can individuals protect themselves against this virus?

At this stage, it is still difficult to say. So far, we only have isolated cases in Germany and Europe. But I don't think that our high mobility will be able to stop the virus at the present time. The German infected patient has contracted the virus in Germany from an asymptomatic virus carrier. The world has become a village, as they say! In my opinion, travel to areas with high infection rates should be avoided at present! And thorough hand hygiene, e.g. classified as "limited virucidal" (effective against enveloped viruses), I also consider very, very important.

Antiseptica: What is more important from your expertise: hand disinfection or mouth protection?

Priority is definitely given to hand disinfection and not only after sneezing or coughing in the hand instead of the elbow! Many pathogens are transmitted via the hands and therefore skilfully performed hand disinfection is a very effective measure to prevent infection.

But in the case of the treatment of sick patients in hospital or doctor's practice a mouth protection is of course appropriate and is part of the bundle of hygiene measures (recommended by the Robert-Koch-Institute) such as hand and surface hygiene and the wearing of personal protective equipment. But here, too, thorough hand hygiene must be observed when putting on and taking off the mask, otherwise one can become infected by accidental contact with the nose, mouth or eyes, as a Canadian publication in connection with SARS showed.

Antiseptica: How does a hand disinfectant work on the virus?

It inactivates the virus by destroying the envelope, which consists of lipids and envelope proteins, and denaturing the proteins needed to infect the cells.

Antiseptica: What is the significance of surface disinfection in terms of protection against the further spread of the virus?

In my opinion, surface disinfection is very important because coughing or sneezing can spray droplets of virus-containing secretion onto the environment, which then sink onto surfaces or objects. Contact with these contaminated surfaces can then contaminate the hands. And if you consider how often you unconsciously touch your face, you can imagine how quickly the viruses are then absorbed through the nose, mouth or eyes and infect the upper and lower respiratory tract. But the reverse is also possible, of course: the virus-containing nasal secretion is spread by an infected person via the hands, e.g. if you hold your hand in front of your mouth when coughing or sneezing instead of coughing in the crook of your arm, on door handles, elevator buttons, window handles, shopping trolleys, fittings, etc., and can thus be transmitted. In the medical field, one must also remember that surfaces can be contaminated by aerosol-generating examination and treatment methods. In general, surface disinfection reduces the pathogen load and is therefore an indispensable preventive measure.

Antiseptica: Under what preconditions does one belong to the risk groups for the virus?

According to RKI recommendations, suspected cases are

1. patients with acute respiratory symptoms and contact with a confirmed or probable case of 2019-nCoV within the last 14 days before the onset of the disease, and
2. patients with a fulfilled clinical picture and stay in a risk area within the last 14 days before the start of the disease.

So far, it seems that patients with underlying diseases are more likely to become seriously ill or die, but in my opinion there is still too little data available for a risk history.

Antiseptica: How can one stay calm now and without panic?

This is a good question, because with this rapid increase in the number of reported cases in the last few days, it is only understandable that the population is very worried. But: At the moment we also have an influenza wave and this is also a respiratory disease, which caused 25,000 deaths in Germany in the 2017/18 season alone. We also have mild and asymptomatic courses of influenza in addition to the severe cases. Whether the 2019-nCoV behaves like a seasonal influenza or more like the Spanish flu is currently still difficult to assess. At the moment, one can therefore only guess and follow the following procedures:

1. Avoid close contact with people suffering from acute respiratory infections.
2. Perform thorough hand hygiene, especially after direct contact with sick people or their surroundings.
3. Observe the etiquette when coughing (keep your distance, cover your mouth and nose with disposable tissues or clothing and wash your hands afterwards).
4. If you have fever, cough and breathing difficulties, seek medical help early and tell your doctor your travel history, e.g. whether you have been in China in the last 14 days or whether you have had contact with a sick person.
5. In medical practices or emergency rooms, the patient may wear a mouth and nose protector to minimize the risk of infection to other patients and staff.

Antiseptica: We thank you, Dr. Eggers for this information and your assessment of the current situation.

Stuttgart, 01/28/2020



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