

“I saw the grim reaper”

After several days with high fever and breathing problems, Jens Askgaard was urgently hospitalised. The doctors searched for a cause for three days while his condition kept getting worse. On the third day a saliva sample showed that the dentist had Legionnaires' disease. He had probably caught it from contaminated water in his dental unit.

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Jens Askgaard's wife and children were frightened. They didn't know if their husband and father would live. Three days before, the 61-year-old dentist was admitted to Aarhus University Hospital with a temperature of 41°C, breathing problems and diarrhoea. At the hospital his condition deteriorated. In the end he could not even turn over in bed.

– I saw the grim reaper. I couldn't do anything, and it was coming out of both ends. The worst thing was that no matter what the doctors did, it didn't help.

Jens Askgaard has had his own dental clinic in Viby, Jutland, for 34 years – and he had only had four days off sick since he opened the clinic. That changed in November 2016 when he caught a bad cold, which got worse and caused him to be admitted to hospital, where he was diagnosed with pneumonia. He was discharged four days later.

– When I was discharged and came back to the clinic, I was tired and exhausted, but I thought it was just a natural reaction to my hospitalisation and pneumonia. But I gradually got worse and thought I was catching a flu. I had a high temperature for several days and breathing problems towards the end. When I went to see the doctor, I was urgently admitted to hospital again, he says.

For three days the doctors tried administering a broad-spectrum antibiotic. They made one examination after the other, but it was not until they took a saliva test that they could make the final diagnosis: Jens Askgaard had Legionnaires' disease.

A historic case

Every year 100-150 cases of Legionnaires' disease are found in Denmark. The source of contamination is usually the shower. But not in Jens Askgaard's case. In his case the bacteria probably entered his system via aerosols from his dental unit.

The first case. It has been quite surreal, as this sort of thing only ever happens to somebody else, says Jens Askgaard. He therefore hopes that his story can help to place a focus on the importance of checking the water quality of dental units regularly.





This is the first time that there has been a registered case of Legionnaires' disease caused by contaminated water from a dental unit in Denmark, whereas there have been deaths from *Legionella* in the water in Sweden, Italy and the USA.

At the beginning of November, only six days before Jens Askgaard was first hospitalised, he carried out a water quality check. He received the results the day after he was discharged from his first admission: In one unit the count was 10,000 CFU/L *Legionella pneumophila* – far above the permitted limit of 100 CFU/L. In the other unit the count was 240 CFU/L. The clinic immediately ordered a Danish-produced disinfection unit.

– We reacted as fast as we could. But it takes time to have such disinfection units delivered, and whether the time of delivery would have made any difference, I don't know. It's uncertain if I was infected before I caught pneumonia or after I was discharged. One thing is certain, though: my having pneumonia did play a role, because Legionnaires' disease typically affects elderly or feeble individuals, says Jens Askgaard.

The National Infection-Hygienic Guidelines (NIR) are becoming more detailed

Marianne Koch Uhre from the Dental Association calls Jens Askgaard's story important.

– Jens Askgaard's story shows the importance of observing the NIR and the requirement for annual water quality measurements, she says.

In addition to the NIR, the Danish serum institute's (Statens Serum Institut (SSI)) website has an internal instruction which was prepared for the City of Copenhagen. This instruction contains more detailed guidelines, e.g. that a dental unit must not be used if the *Legionella pneumophila* count is higher than 1000

CFU/L. However, Marianne Koch Uhre denies that there is a requirement for a higher degree of detail in the NIR and describes the existing guidelines as good, and in her view it is sufficient that it is currently up to the dentists' professional judgment whether a unit should be taken out of use.

Lecturer Tove Larsen from the Department of Odontology in Copenhagen, who assisted with the development of the current guidelines, also thinks that the dentist's story shows how important it is to check the water quality of dental units regularly, and she confirms that it is always up to the individual dentist's professional judgment whether a unit should be taken

What is Legionnaires' disease?

Legionnaires' disease is pneumonia caused by the bacteria *Legionella pneumophila*. The incubation time is 2-10 days, in some cases longer. The first symptoms are typically high fever, headache and muscle pains, just as for influenza. In some cases the early stages of the disease include vomiting and diarrhoea. After a short time the patient develops a dry cough accompanied by chest pains. The disease develops into pneumonia with breathing difficulties, often accompanied by symptoms from other organs such as the central nervous system (confusion), liver and kidneys. The mortality rate is 10-15%.

out of use until a new water sample is available after the unit has been checked and disinfected.

– The guidelines from SSI for the City of Copenhagen provide more detailed recommendations which can help with the decision. They were not available when the NIR were prepared, but we are considering incorporating them into the next version of the guidelines, she says.

The disease was costly

Now, six months later, Jens Askgaard is working full time again. But he is still tired, he says. Financially, the disease has been costly to me. The clinic was closed for four weeks, and 300 patients had to be moved to another dentist. The dentist from Central Jutland es-

timates that his period of illness reduced his turnover by about DKK 200,000. Fortunately the clinic lost no patients.

– What I've been through is quite surreal. It's something that only happens to others. I never imagined that the total viable count was so high. I don't think any dentist could imagine that.

So he would like to say something to all other dentists in Denmark.

– Just have those water samples taken and be certain if they contain bacteria or not, says Jens Askgaard, and continues:

– My story shows that there is a real risk of disease for both dentists and patients. We have to address that problem. ♥

Four things to do if the water quality is not good enough

If the results of your water sample shows a total viable count of above 500 CFU/ml at 37 degrees and/or the presence of *Legionella pneumophila*, you should do the following:

- 1 Immediately contact a service technician to have the unit cleaned.
- 2 Make sure that the unit is flushed for at least five minutes every day before the first patient arrives. The recommended flushing time may vary depending on the type of equipment – the technician can advise you.
- 3 Ask the technician if there is an adequate way of eliminating the water pollution of your unit/clinic. If the unit already has a water disinfection unit, contact the service technician to establish whether the unit can become fully functional
- 4 or whether it is necessary to install a different type of disinfection unit. Before you do anything else, the Dental Association recommends that you read the association's contracts to be used in connection with the installation/purchase of water disinfection units, or that you contact the Dental Association.
- 4 The Dental Association recommends that one water sample per unit be taken no earlier than two months after the installation/adjustment of the water disinfection unit to check the efficiency of the unit as part of the overall installation.

Source: Tdlnet.dk