

Influenza:

**Primary - initial - spread triggered
by the abiotic vehicle “cold drinking water” -
Trigger of human influenza epidemics
by the “warm biotic droplet infection” improbably**

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The primary - initial - trigger of the human influenza epidemics by the biotic droplet infection is extremely improbably because influenza epidemics

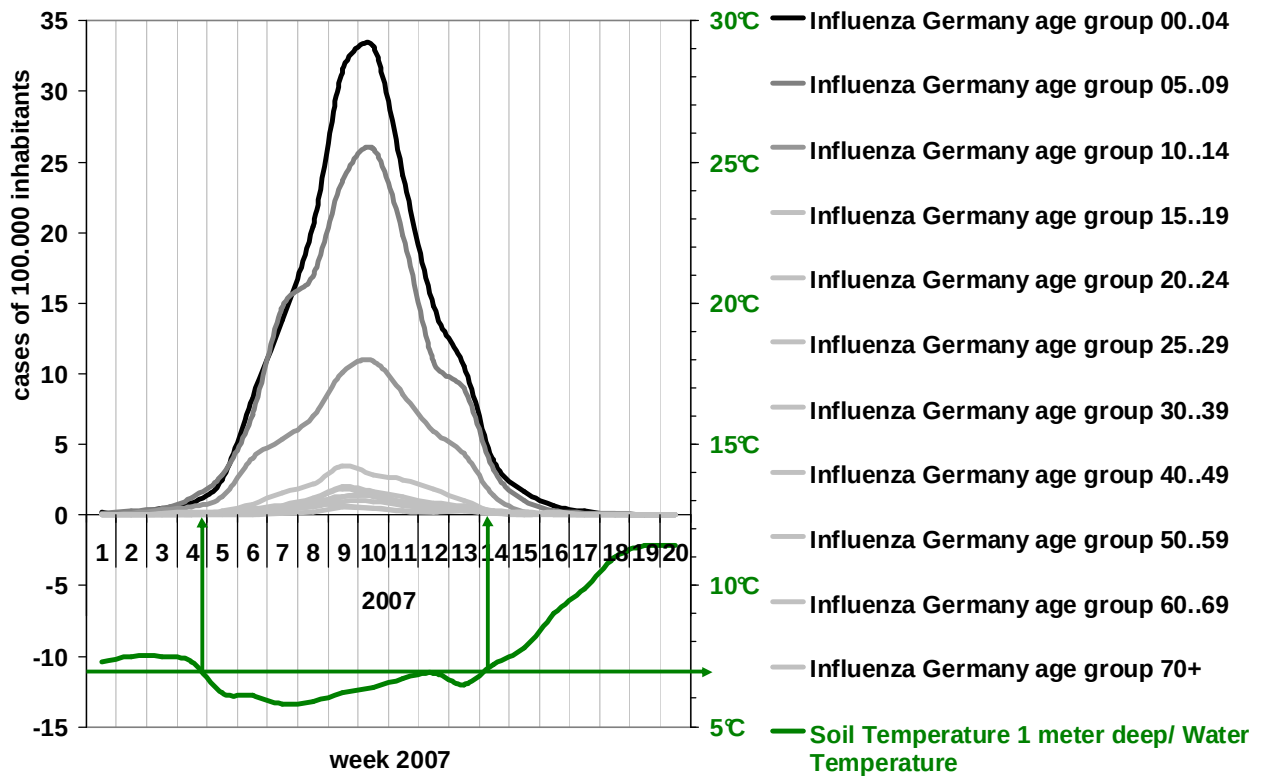
- only in 9% of the cases (season 2004/2005 in Germany) together with recognized amassments arise.
- regularly first with babies and children begin.
- virological locally singularly arise (influenza-subtypes and fine classification).
- arise geographically locally singularly.
- in large cities and densely populated areas to be proven not with priority.
- predominantly in the colder regions of Germany arise.
- their maxima regularly in certain districts/cities reach.
- strictly parallel to the course of the winter cooling sum run.
- by saliva droplets hardly can spread. Saliva contains far less Influenza viruses than the - heavier - droplets from throat and nose.

The facts

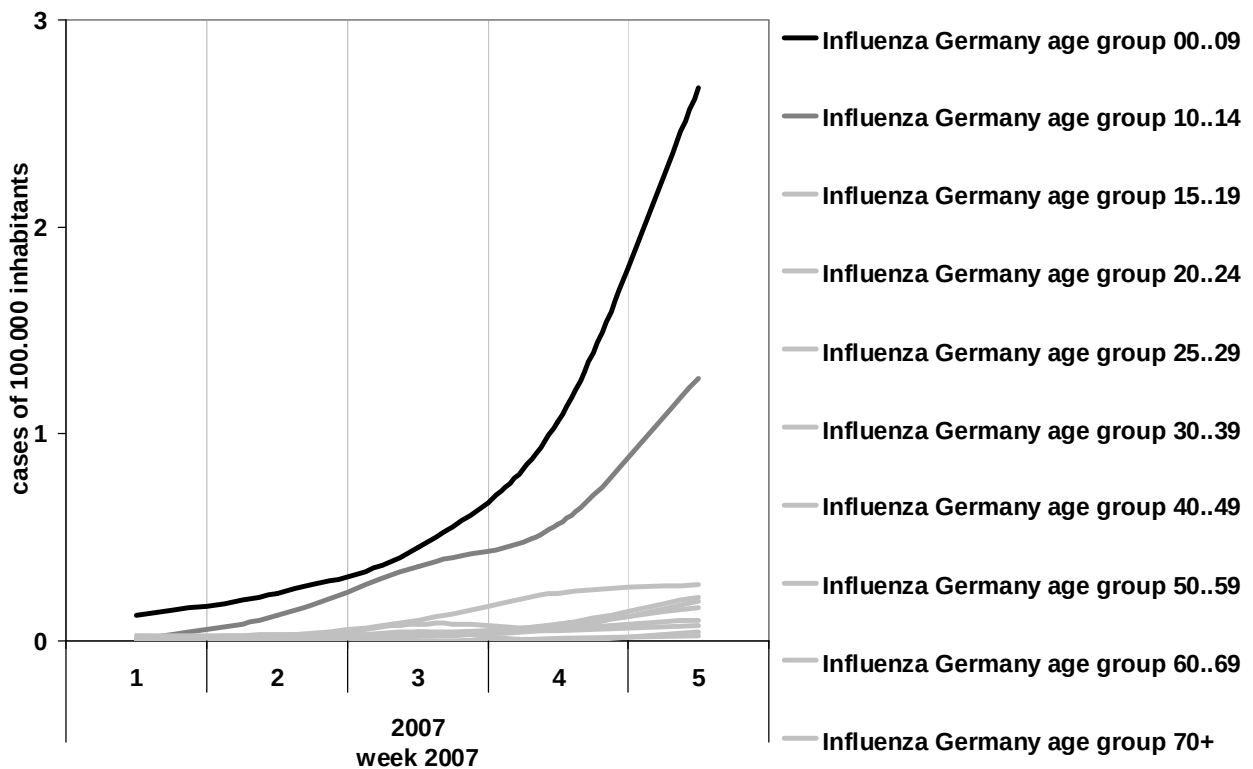
Influenza epidemics in Germany step to small extent as well as recognized in a cluster (9% of the cases in the season 2004/2005) (RKI 2006). They begin regularly first with babies and children and have in their age groups also their maxima (RKI 2007) (Graph 1, 2).

Influenza epidemics occur virological locally singularly (influenza-subtypes and fine classification) (AGI 2007) (Graph 3).

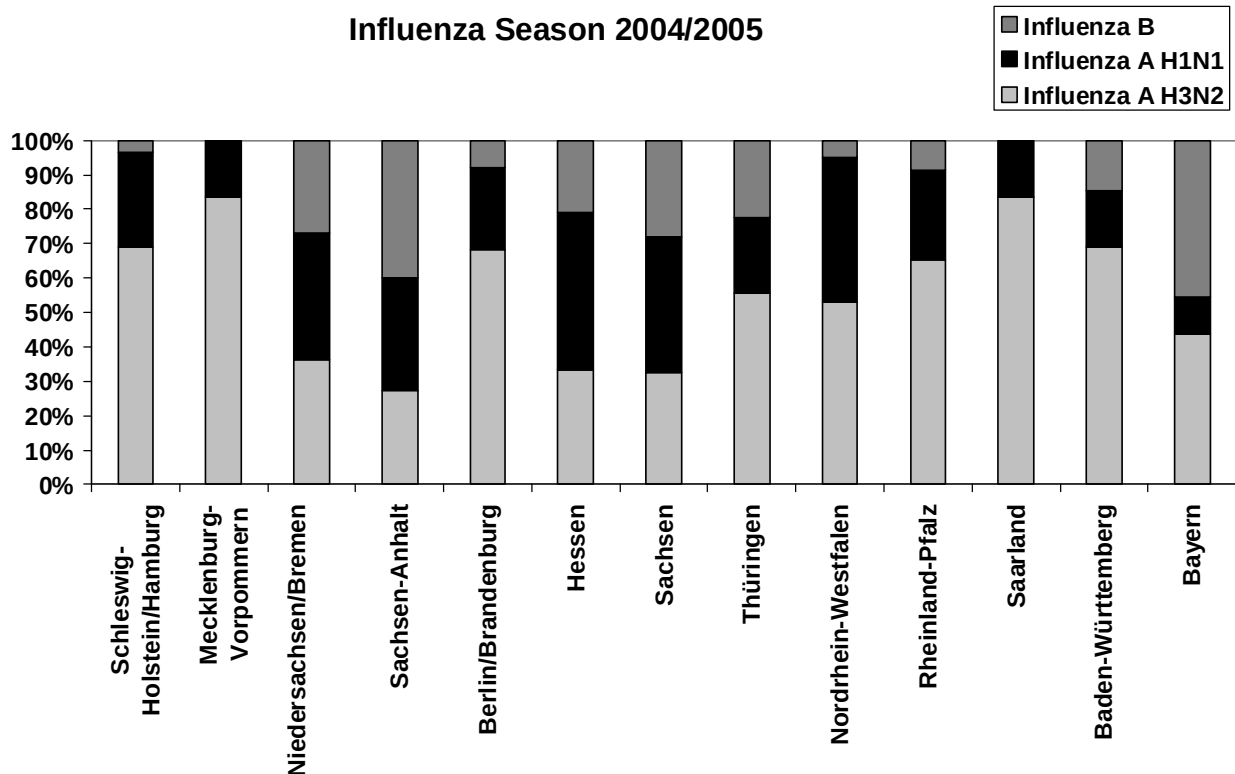
Influenza epidemics run also geographically locally singularly. They are not proven with priority in large cities and densely populated areas. They arise predominantly in the colder regions of Germany (the east in the winter cold continental climate, southeast, altitudes) (RKI 2007). They reach their maxima regularly in certain districts/ cities (absolute maxima: Frankenthal, Worms, district Stollberg) (RKI 2007) (Graph 4).



Graph 1: Influenza incidence Germany 2007, age groups, 18.670 cases - drawn over soil-/water temperature (RKI 2007) (DWD 2007)



Graph 2: Influenza incidence Germany in the 5 first weeks 2007, age groups, 18.670 cases (RKI 2007)



Graph 3: Percentage of Influenza types in the season 2004/2005 (AGI 2007)

Influenza epidemics run strictly parallel to the course of the winter cooling sum (Graph 5, 6).

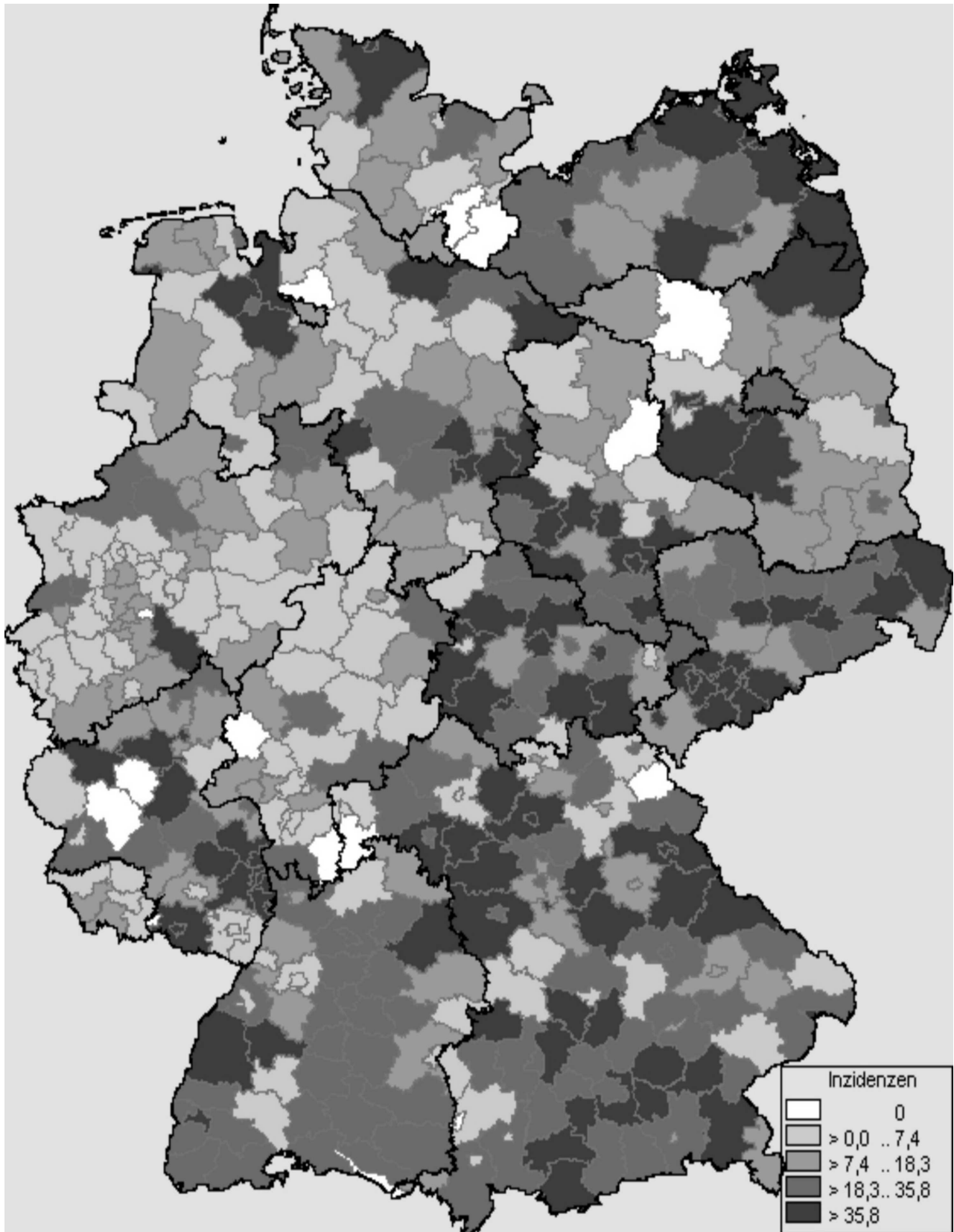
Influenza epidemics hardly can spread by saliva droplets. Saliva contains far less Influenzaviruses than the substantially heavier droplets from throat and nose (ANONYMOUS 2003) (GOLDMANN 2001).

Human Influenzaviruses could being proven in the excretions of mammals such as pigs (faecal and oronasal), wild boar (faecal and oronasal), cattle and goats, so that in principle the transmission path from the environment is over waters and the drinking water possible (BROWN 2004) (GRAVES et al. 1975) (KADEN et al. 2001) (KAWAOKA et al. 1986) (LANDOLT et al. 2003) (MARKOWSKA DANIEL et al. 1999) (RKI 1999) (VICENTE et al. 2002) (WEBSTER 1998) (ZHOU et al. 1996) (CARPENTER 2001). With considerable security in the future still further animal species infected with influenza A are discovered (WEBSTER 1998).

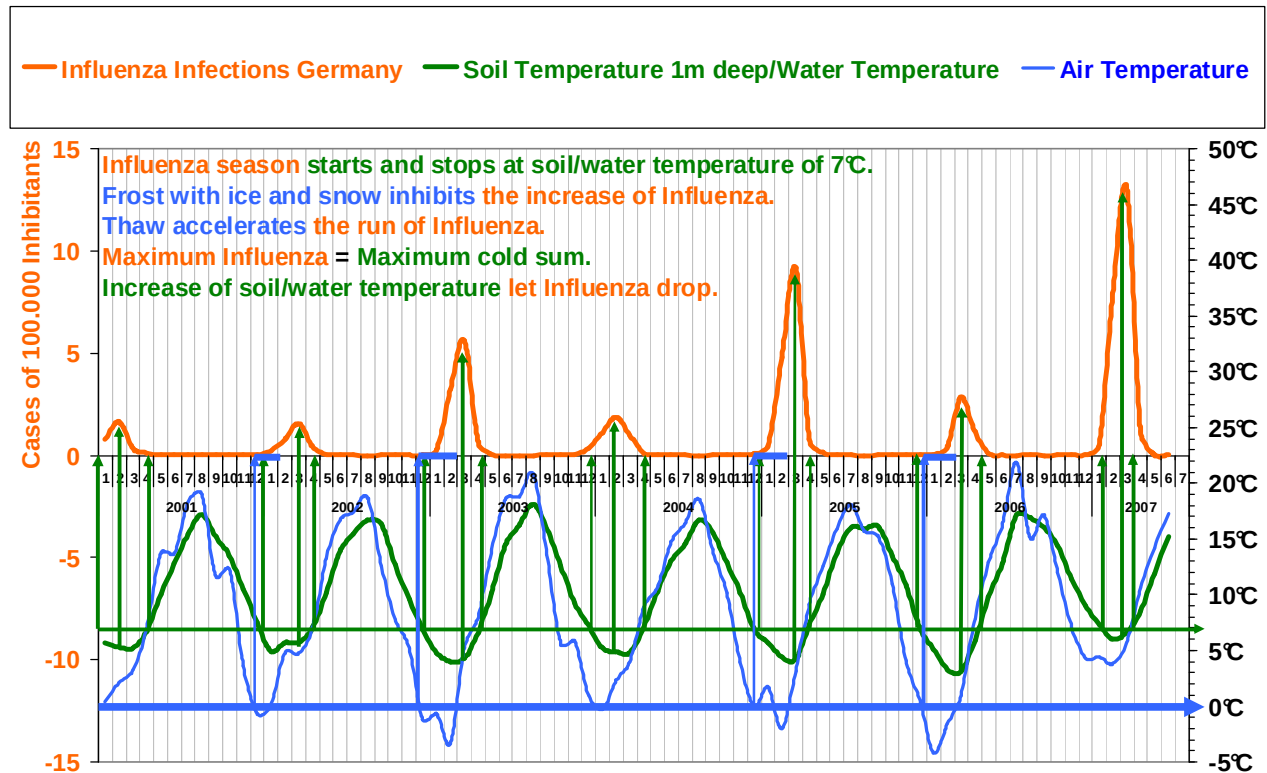
Elimination and inactivating of viruses during the drinking water treatment

Drinking water is often not filtered in Germany or only roughly. The very small viruses are not removed surely thereby. For groundwater treating fast spread filtration plants for the elimination of iron and manganese do not possess any effect regarding the elimination of viruses (WHO 2004). Even in Germany as particularly efficiently valid plants for the flocculation and filtration, also with consideration of the common disinfection procedures, whose efficiency with sinking water temperature decreases [Chlorine and ozone treatment] and with micro organisms clumped in the water are only reduced effective

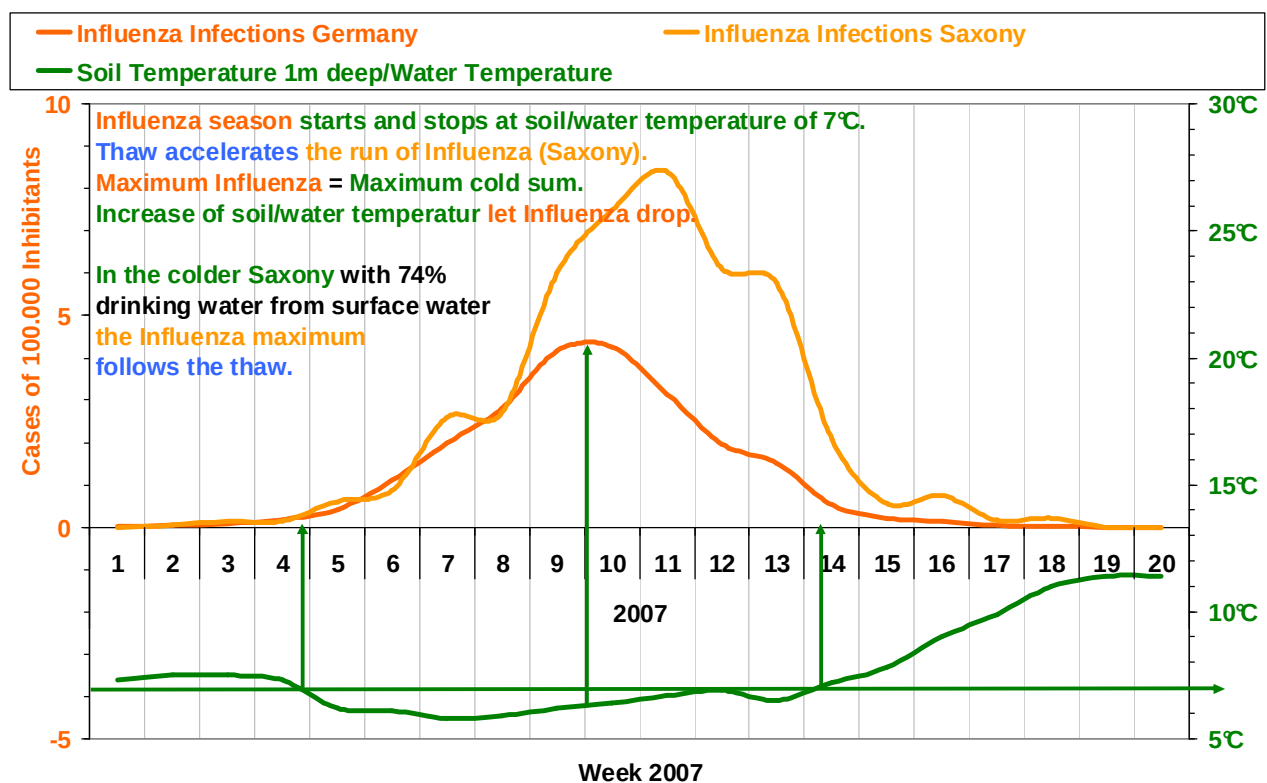
[Chlorine, ozone treatment and UV irradiation], can not reach from the WHO demanded eliminations and inactivating goals (WHO 2004).



Graph 4: Influenza incidence Germany in the German districts/cities 2007, 18.670 cases (RKI 2007)



Graph 5: Influenza incidence Germany 2001-2007 (RKI 2007) - drawn over soil-/water and air temperatures (DWD 2007)



Graph 6: Influenza incidence Germany and Saxony 2007 (RKI 2007) - drawn over soil-/water temperatures (DWD 2007)

"Cooling chain of the public water supply"

Coldness is the most important parameter for the preservation of virulent Influenzaviruses in water. The temperature minimum of the dam water in Germany amounts to in the months January and February 3-4°C. River water has its temperature minimum likewise in January and February. Ground water near the surface has in Germany at the ground water surface - similar to the soil in 100 cm depth - its temperature minimum of for instance 3°C in February and March. Also from wells of larger depth taken ground water can be colder with unsatisfactory sealing between the fountain and the surrounding rock by infiltration by surface water affected and therefore than the deeper ground water. River water trickling away arrives on short ways at the wells, can have the same effect. Bank filtrate from wells, which were bored near the bank by surface waters, accepts the temperature of the cold surface water. Same applies to wells, from which with surface water enriched ground water is pumped. The soil temperatures in a meter of depth correspond to the temperatures of the drinking water pipelines shifted frost-protected in the soils. The temperature minima of the soil temperatures in 100 cm depth amount to in Germany during the months February and March 3-5°C (DWD 2007). The temperatures of the drinking water pipelines and the drinking water transported in them adapt themselves to the soil temperatures. In the winter cold raw water remains cold in the drinking water treatment plants and after the treatment to drinking water in the water tanks and water pipelines up to the annexe of the consumers. The temperature minimum of the drinking water follows in particular the run of the wintry cold sum in the soil and in the water pipelines. It arises in the months February/March. The cold drinking water is just mixed in the dwellings at the taps with warm water from the house installation. Thus the "cooling chain of the public water supply" is described from the water winning to the consumers with a drinking water temperature of for instance 4-5°C in the months February/March. Cold, young, freshly drinking water, taken out of surface water and badly protected ground water near the surface as well as out of ground water from rock, contaminated by Influenzaviruses, can be the abiotic vehicle, which transports virulent Influenzaviruses in the winter with 4-5°C conserved over the "cooling chain of the public water supply" to humans.

Transmission paths of the drinking water

Infections by drinking water will not be transmitted alone by drinking the water. Further transmission paths are the inhalation of aerosols and the contact with the drinking water. Entrance gates with humans are conjunctiva, the nose mucous membrane, the mouth mucous membrane, the eardrum, wounds and by catheters affected other mucous membranes.

Conclusions

The primary transmission of the influenza by the biotic "warm" droplet infection from human to human is already because of the strict dependence on environmental temperatures extremely improbable. The influenza must be triggered by an abiotic vehicle increasingly efficient for the spread of infections with increasing cold environmental temperatures. Therefore must be searched for the transmission of the influenza for abiotic vehicles dependent on cold environmental temperatures. Drinking water is such an abiotic vehicle. The stated references and indications show that cold drinking water can be that

abiotic vehicle, with which virulent human Influenza viruses from the reservoirs arrives to humans and triggers predominantly the seasonal influenza epidemics.

That applies in particular also to the extremely lethal H5N1 bird flu, whose faecal transmission is indisputable.

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ON IMPERFECT STUDIES

"The subject is capable of being decided by exact numerical investigation, but I have thought it better to publish my inquiry in its present imperfect state than to wait till I should be able to make such a complete research as I could wish, more especially as, by directing the attention of the profession to the question, it may be earlier decided."

JOHN SNOW
