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## ZOONOSES

**Zoonosis** (zoonoses, *plural*): a disease of animals that may be transmitted to Man under natural conditions.

Although many aquatic organisms can potentially infect Man, very few fish diseases have been proven to be zoonotic. Humans become infected by handling diseased fish or contaminated equipment, or by ingesting water from facilities that contain diseased fish. Therefore the use of sterilizing equipment, wearing disposable gloves and thorough hand washing should be routine precautions to minimize the risk. It should be assumed that zoonotic organisms are always present and therefore the following safety measures should be used to limit the spread of these diseases:

Use disposable gloves for food preparation, post-mortem examinations

If open wounds are present then cover with a waterproof bandage and wear rubber or plastic gloves of a suitable length

Suitable hand-washing facilities and warning signs should be provided for staff. Areas of exposed skin that have been in contact with water from tanks or ponds should be washed, and rinsed thoroughly, as soon as practicable and certainly before eating drinking or smoking. If used remember antiseptic cleansers may provoke allergic reactions in some people and residues on hands may prove harmful to fish

Avoid sharing equipment between systems and where necessary sterilize with suitable disinfectants at the correct concentration for the recommended length of time

Identify and mark infected systems, and where possible, avoid further stocking until the system is disinfected

Wash and disinfect contaminated work surfaces regularly

We advise you do not feed live fish (a practice that may be made illegal shortly) to carnivorous fish and only use raw fish as a food when absolutely necessary.

Regard all dead fish as clinical waste and dispose of them carefully in accordance to current legislation

Do not prime water siphons by mouth

Do not eat, drink or smoke outside designated areas

Do not wash nets and equipment in sinks intended for human use

Immunosuppressed persons (infected with HIV or receiving chemotherapy) should not handle potentially infected materials

## **MYCOBACTERIUM**

*Cause:* *Mycobacterium marinum*, *M fortuitum* and other *Mycobacterium* species; common bacteria in all aquatic environments

*Comment:* the most common chronic disease that affects aquarium fish, commonly called 'mycobacteriosis' or 'fish tuberculosis (TB)'. It may take two or more years for the number of organisms to grow to detectable levels.

*Transmission:* bacteria are shed from infected skin ulcers and the intestine into the water. Fish are infected by contact with organisms in water, cannibalism and eating uncooked infected fish.

*Signs in fish:* most show few or no external signs of disease but advanced cases may exhibit poor growth, weight loss, colour change, lethargy, chronic non-healing ulcers, skeletal deformity, abdominal swelling, lack of coordination, sudden death.

*Signs in humans:* single or multiple (sporothricoid) non-healing ulcers on hands or arms, commonly called 'fish tank or swimming pool granuloma', 'aquarists nodule', 'aquarists finger', 'aquarists arm'. Small lesions may heal spontaneously but others require courses of multiple antibiotics over several months.

*Control:* there are no effective non-lethal tests to identify infected fish and no vaccine

## **VIBRIO**

*Cause:* various *Vibrio* species; common bacteria in marine and brackish environments

*Transmission:* infection by contact with bacteria in water

*Signs in fish:* ulcers, lethargy, inflamed areas on skin, deaths

*Signs in humans:* ingestion may cause vomiting and diarrhoea; wound infection produces local inflammation and severe tissue reaction

## **AEROMONAS**

*Cause: Aeromonas hydrophila* and other *Aeromonas* species; common bacteria in freshwater environments

*Transmission:* infection by contact with bacteria in water

*Signs in fish:* ulcers, lethargy, inflamed areas on skin, deaths

*Signs in humans:* ingestion may cause vomiting and diarrhoea; puncture wound infection produces local inflammation and severe tissue reaction.

## **OTHERS**

Several other organisms of aquatic origin have been linked to human disease but in most cases these have been due to contamination of the environment rather than direct infection from fish. These include *Salmonella*, *Leptospirosis* (Weil's disease, usually associated with surfaces or water infected by the waste products of rats), *Streptococcus*, *Erysipelothrix* ('fish rose', 'erysipeloid'), *Cryptosporidium*. Details of these and other rare cases can be found in the reference below.

## **REFERENCES**

Nemetz, TG & Shotts, EB Jr (1993) Zoonotic diseases. In: Fish Medicine (ed. MK Stoskopf) WB Saunders Co., Philadelphia

