



PRACTICAL ADVICE ON LEGIONELLA INFECTION CONTROL ABOARD VESSELS



WHY SHOULD VESSELS BE CONCERNED ABOUT LEGIONELLA?

Legionnaires' disease is a potentially fatal form of pneumonia. If infected between 10-30% of people die unless treated early and quickly.

"28 people died and 242 were infected in Holland at the Bouenkarspel Flower Festival because of a poorly maintained spa pool that had been connected to a fire hose water supply!"

"7 people died and 150 infected at Barrow-in-Furness, Cumbria because of a poorly maintained air conditioning unit!"

There are approximately 200-250 cases of legionella infection annually in the UK and around 12% of these prove fatal. Half are associated with foreign travel and the balance with cooling towers and hot & cold water systems in hotels, hospitals, factories, residential homes, ships, spa baths etc.

Vessels are no exception.

WHAT ARE THE SIGNS & SYMPTOMS?

The symptoms include a flu-like illness, followed by a dry cough which frequently progresses to pneumonia. Approximately 30% of people infected may have diarrhoea and vomiting and 50% may show signs of mental confusion. The incubation period is from 2-10 days.

WHO IS AT HIGHER RISK?

Men more than women, people over 50, smokers, alcoholics, diabetics, people with a chronic underlying disease and/or a weakened immune system.

WHERE IS LEGIONELLA FOUND?

Legionella bacteria are widespread in natural sources of water including rivers, streams and ponds and may even be found in soil. They are also found in many recirculating and hot and cold water systems.

It has never been isolated in salt water so vessels that make all their potable water by evaporation have a lower risk of the bacteria being present.

HOW CAN LEGIONELLA BE CONTRACTED?

Only when water contaminated with legionella bacteria is made into a very fine spray (aerosol) that can be inhaled does it pose a risk to health.

For example:-

- When having a shower.
- When running sink taps.
- Warm moist air circulated by air conditioning, heating units & humidifiers.
- When using fire hoses (if fresh water is used).
- Washing down the hold (if freshwater is used).

To drink water contaminated with legionella bacteria will NOT cause you to be infected and there has been no evidence of person to person transmission.

WHAT DO WE NEED TO DO?

Assess the water systems of the vessel and identify any risk areas and remove or reduce possible sources of contamination.

By → (Risk Assessment) You reduce
(Routine Maintenance) → the chance
(Regular Cleaning) of infection

WHAT PRACTICAL MEASURES SHOULD BE TAKEN?

Assess the water systems of the vessel and identify all risk areas.

1. Study the hot & cold water system plans and identify all water outlet points "dead legs", any potential "dead ends" (blanked off pipes where the water cannot circulate) or long pipe runs.
2. Check the water temperature of ALL hot & cold water points, ie taps, showers, hoses.
 - Allow hot water to run for 1 min. & cold water for 2 mins. before taking a reading.
 - The boiler output temperature must be above 60°C.
 - The hot supply must be greater than 50°C.
 - The cold supply must be less than 20°C.
3. Check what actual cleaning, maintenance and disinfection routines are in place on the vessel at present.
4. Assess and identify ALL points where water could be made into an aerosol and be breathed in by the crew, passengers & visitors.
5. Document your findings so that the information can be included in the planned maintenance or ISM procedures which can be referred to by any Master or responsible officer.

An ideal vessel at least risk is one where the temperature readings are satisfactory, you have no "dead ends", the "dead legs" are used frequently, the vessel makes all its potable

water by evaporation, and cleaning & disinfection procedures are in place.

WHAT CLEANING AND MAINTENANCE PROCEDURES SHOULD BE IMPLEMENTED?

The minimum recommended requirements are as follows:-

- a. The hot water boiler outlet temperature must be greater than 60°C.
- b. Dismantle, inspect, clean and soak the shower heads and pipework for a few hours at least once every 3 months in a disinfectant/chlorine solution. Remove any sediment, algae or calcified deposits found.
- c. Super chlorinate the fresh water tanks twice a year and flush the water through all outlet points "dead legs".
- d. Any crew or passenger cabin that has been out of use for 2-4 weeks must have the shower cleaned and soaked in a chlorine solution prior to the cabin being used.
- e. Have the water bacteriologically tested if you find hot & cold water temperatures are outside those recommended.

ACTION TO BE TAKEN RESULTING FROM LEGIONELLA SAMPLE RESULTS

Less than 100 cfu/litre→No action system controlled.

100 – 1000 cfu/litre→1 or 2 positives, resample & review risk assessment & controls.

100 – 1000 cfu/litre→ Majority positives, resample, review risk assessment & controls and super chlorinate/disinfect the water system.

Above 1000 cfu/litre→ Immediately resample, review risk assessment, control measures & remedial action to be taken and super chlorinate/disinfect.

(cfu = colony forming units)

If however some areas do not comply with recommended guidance YOU MUST INVESTIGATE FURTHER.

Any areas identified as having a higher risk of legionella being present may need re-designing or increased cleaning and maintenance.

Assess the potential problem areas for the vessel.

Implement a testing, cleaning and maintenance routine.

Document what you do within your planned maintenance or ISM protocol.

QUESTIONS TO ASK YOURSELF

Is the hot water boiler temperature hot enough to ensure temperatures of above 50°C or below 20°C are achieved at all "dead legs"?

Have I ensured hot & cold pipes are insulated and do not affect one another?

Have I identified any other risk factors and corrected them?

Have I identified all "dead ends" within the hot & cold water system and removed them?

Have I reduced the risk on board the vessel?

If you have answered 'YES' to all the questions above you should have successfully reduced the risk of legionella being present on board the vessel.

For any further information please contact:-

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