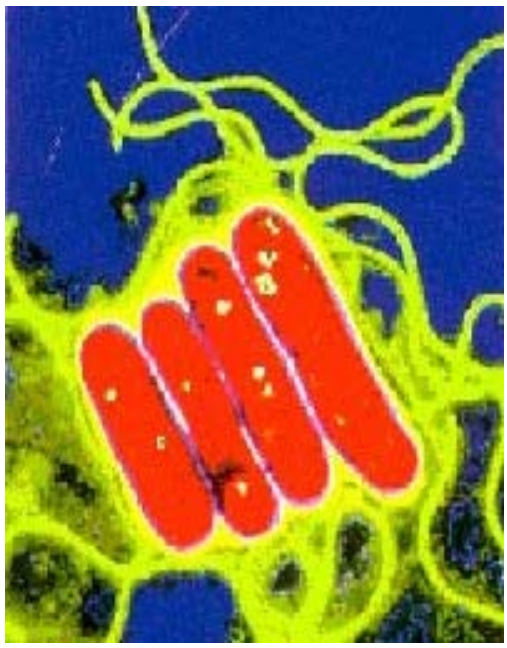
Where do the Legionella bacteria come from?

- Legionella bacteria are common and can be found naturally in environmental water sources such as rivers, lakes and reservoirs, usually in low numbers. If the bacteria get into water systems used in buildings such as hotels, they can sometimes cause a risk to humans if people get exposed to them through air conditioning or air cooling systems, or through contaminated water systems used for baths or showers etc.



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For Optimum Growth

- pH - 5.1 ~ 9.1
- Temperature - 20 ~ 50^{O} C (optimum ~ 37^{O} C)
- **Iron** Source ~ Corrosion
- e.g. Ferric Oxide can give a 10,000 to 100,000 increase in growth rate
- Nutrients ~ Scale (Ca & Mg Salts)
- ~ Biofilm (L Cysteine)
- Moisture

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- Legionellosis accounts for three diseases
  - Legionnaires' disease
  - Pontiac fever
  - Both from the Legionella pneumophila (Lp) bacterium
  - Lochgoilhead fever
- **Only legionnaires disease has been fatal to date but all should be controlled**

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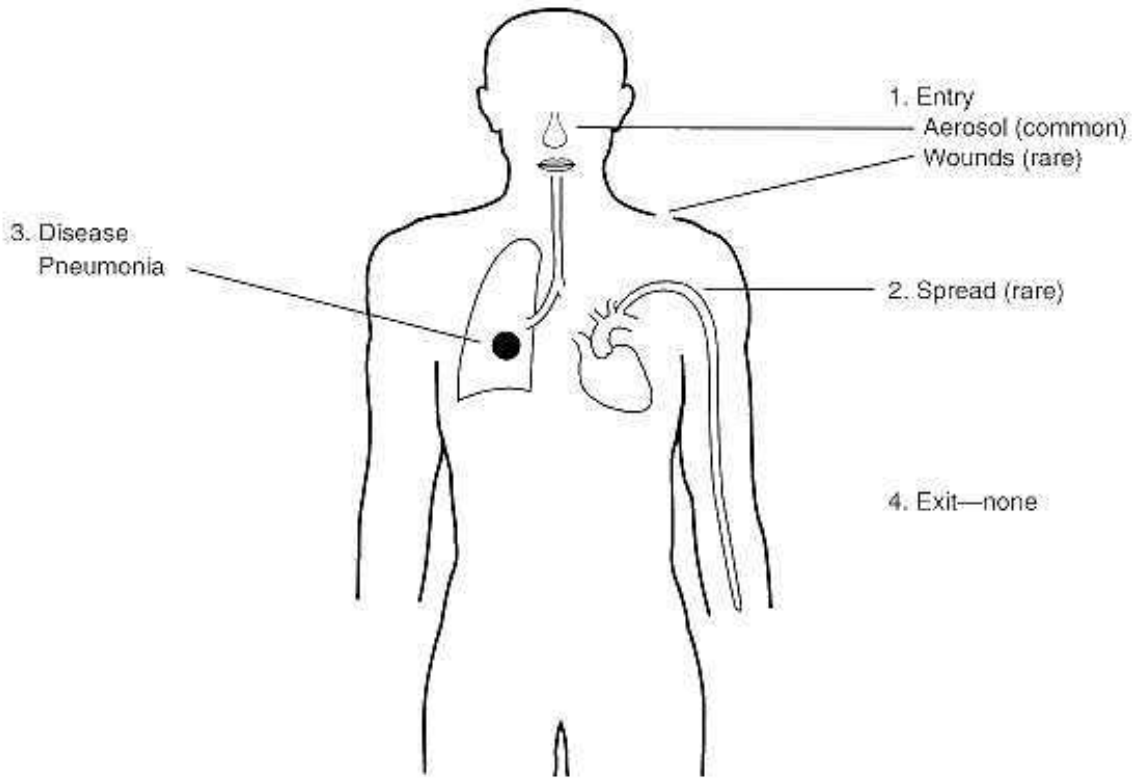
1. Entry
Aerosol (common)
Wounds (rare)
3. Disease
Pneumonia
2. Spread (rare)
4. Exit—none

- The majority of offshore platforms have legionella in their water systems
- How does it get there?

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It is a legal requirement that employers take all reasonable steps to minimise the risk in any water system from legionella bacteria

Non-compliance is NOT an option

This is everyone's responsibility under the COSHH regulations and the Health & Safety at Work Act

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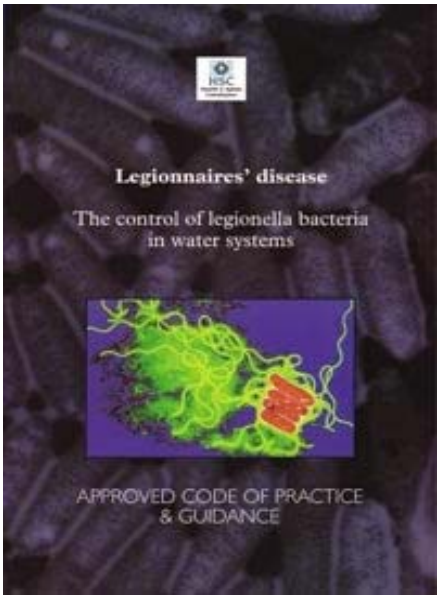
Legionnaires disease: The control of legionella bacteria in water systems (L8)

- L8 is a combined **approved code of practice** and guidance effective from January 2001
- It gives practical advice on how to comply with the law



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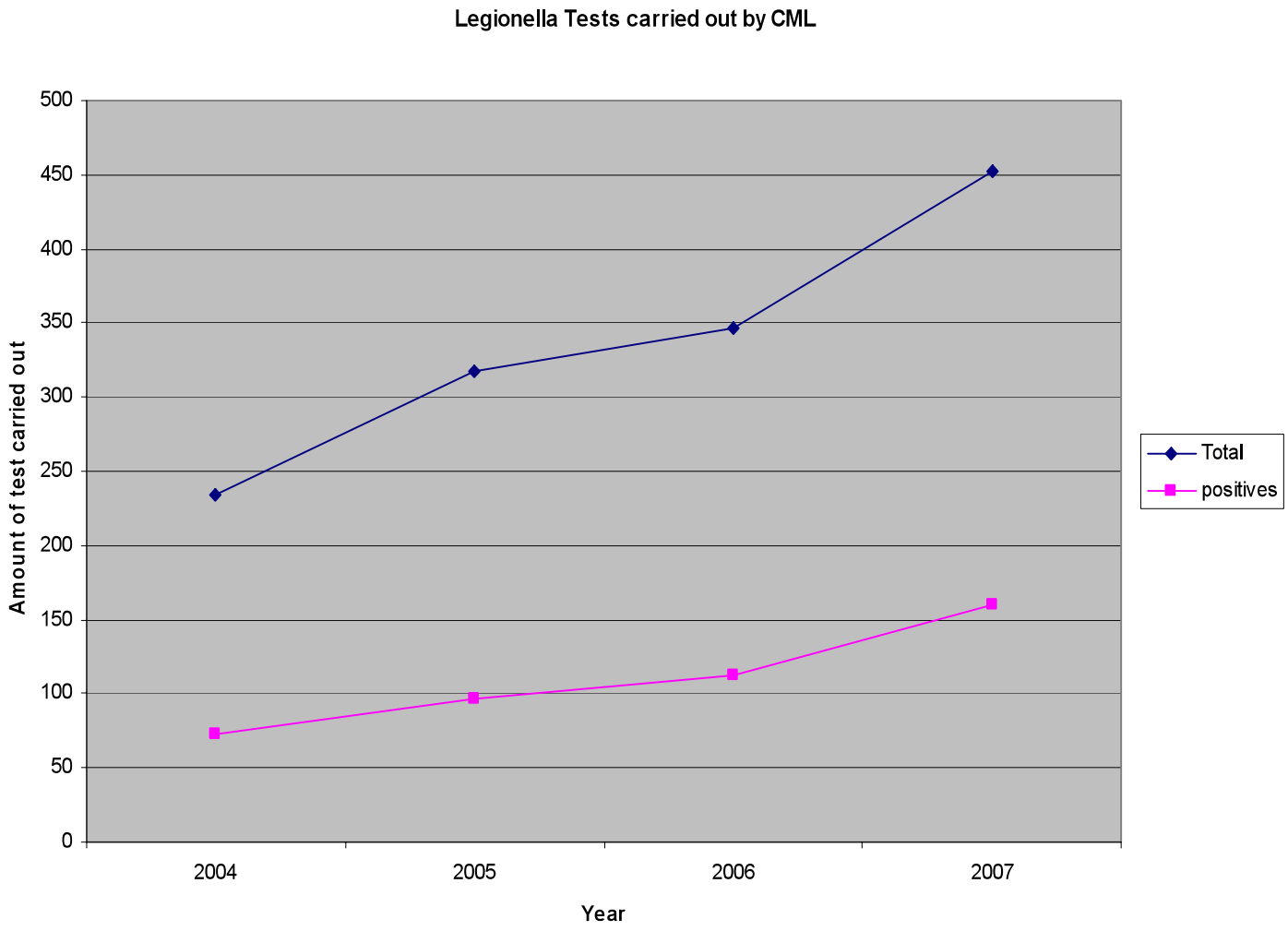
Legionella Tests carried out by CML
Amount of test carried out
500
450
400
350
300
250
200
150
100
50
0
2004
2005
2006
2007
Year
Total
positives

Hot & Cold Water Services

- The Bacterium will proliferate in:
  - TANKS
  - CALORIFIERS
  - DEADLEGS
  - PIPEWORK/OUTLETS
  - SOFTENERS

  - BUT only if it encounters favourable conditions of:
  - Temperature
  - Stagnation
  - Contamination/Cleanliness

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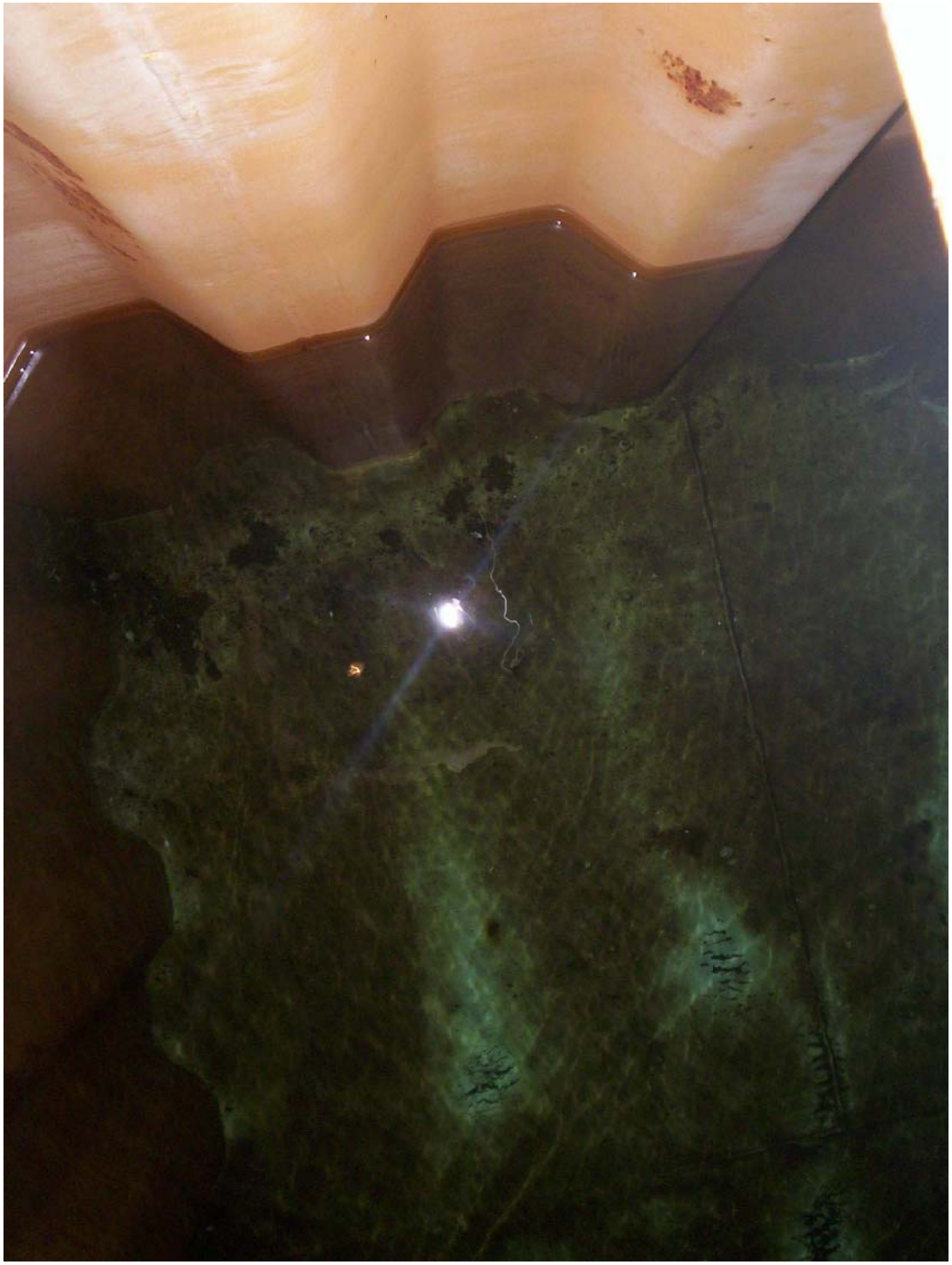

Sinks

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What should a Legionella Risk Assessment include?

- The assessment of risks to health- identification of potential sources of risk
- Consideration of the prevention to exposure
- Steps to take to achieve adequate control of exposure
- inspect and audit all aerosol generating systems - include temperatures, flow rates, deadlegs, note condition of equipment, biological activity, presence of dirt, rust
- Identify any other actions to comply with COSHH regulations, which might include maintenance of equipment
- Review the assessment at least every TWO years, or when changes have taken place
- **Records must be kept- no records = non compliance**

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Hot and Cold Water Systems - Control

- Hot water storage at more than 60ºC
- Hot water distribution should be more than 50ºC within one minute of running water
- Cold water storage and distribution should be less than 20ºC after running water for two minutes

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Chlorine Dioxide

- Chlorine dioxide is an oxidising biocide, reacts with a wide range of organic substances
- Levels of 0.5 mg/l can be effective against planktonic & sessile legionella in hot water systems
- Maximum value for total oxidants in drinking water supplies (chlorine dioxide, chlorite and chlorate concentration) should not exceed 0.5mg/l as chlorine dioxide

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Take a step back from the platform

- Where do they get their water from?
- Make their own or from supply vessels

Currently testing for legionella bacteria is not a requirement for pot water on supply vessels –

Only required to test for water microbiology and water chemical analysis quarterly