

# Overview of Legionella & Management Framework in Victoria

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Health  
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# History

- First recognised cases of Legionnaires Disease in Philadelphia 1976 - >2000 American Legion attendees at Bellevue-Stratford Hotel.
- 221 attendees contracted Legionellosis, of which 34 died.

Melbourne;

- 2000 Melbourne Aquarium, 125 cases, 4 deaths

# What is Legionella

- Gram –ve bacillus bacteria
- Over 40 serotypes;
  - pneumophila* (LP1) most common
  - longbeachae* found in soil
- Transmission via water droplets
- Where is it found?

# Legionella Bacteria in warm water systems

- Un-natural environments
- Cooling towers
- Warm water systems
- Spa's
- Car/truck washes



# Types of Cooling Towers



# Biofilm



# Legionella & Amoeba



**Legionella**

Photo: Robert Koch Institute Berlin



**Legionella in amoeba**

Photo: Robert Koch Institute Berlin

# Legionnaires' Disease

- Incubation period 2-10 days
- Airborne transmission via water droplets

## Symptoms:

- Headache, fever, chills, muscle aches, dry cough, shortness of breath – flu like

## Those at high risk:

### Immunocompromised;

- Elderly
- Children
- Smokers
- Chronic illness
- Heavy alcohol consumer



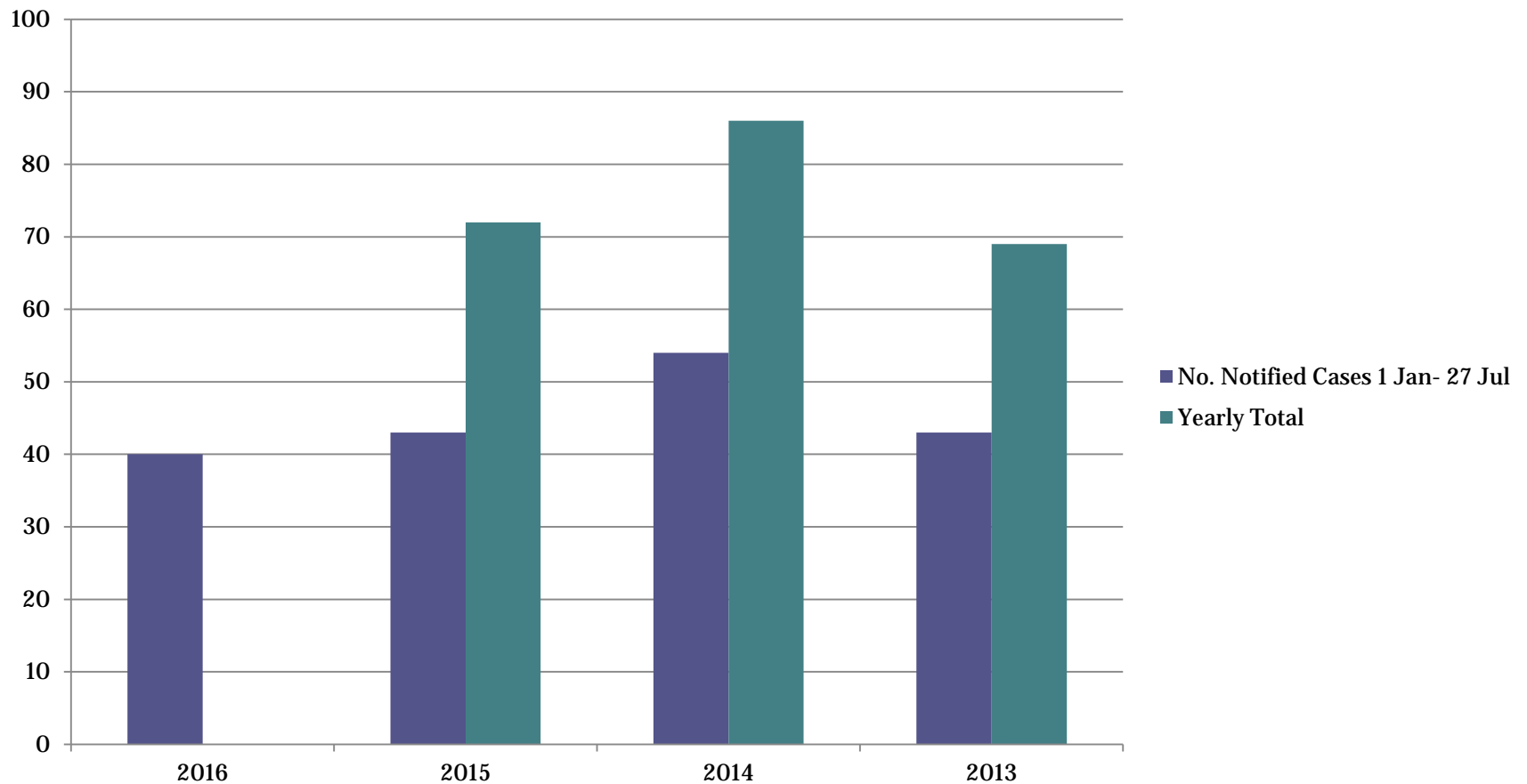
# PHWA Regulations 2009

- **PART 7—COOLING TOWER SYSTEMS AND LEGIONELLA RISKS IN CERTAIN PREMISES, Division 1 & 2.**
- **Division 1 = Cooling Tower Systems (CTS)**  
**What is a cooling tower?**
- **Division 2 = Risks in certain premises – Aged care, Health, Commercial vehicle washes**
- **Landowner is responsible for CTS registration & maintenance**
- **Minimum requirements;**
  - \* **Registered with DHHS (\$104.60/year)**
  - \* **Risk Management Plan (Identifying maintenance schedule)**
  - \* **Review of RMP**
  - \* **Water Treatment Service Provider**
  - \* **Annual Audit by DHHS approved auditor**

# Roles of DHHS

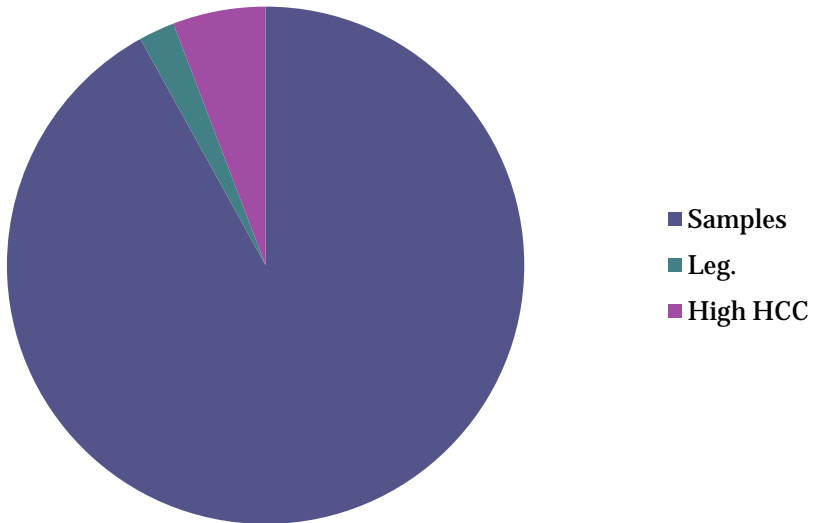
- Case investigations;
  - \* Sampling of surrounding CTS (500m)
  - \* Interview out patients
- Inspections
- Positive Legionella or High HCC remedial actions/follow up
- Provide information and guidance how to fulfil PHWA regs, enHealth
- Prevent Outbreaks!

# Legionellosis Notifications

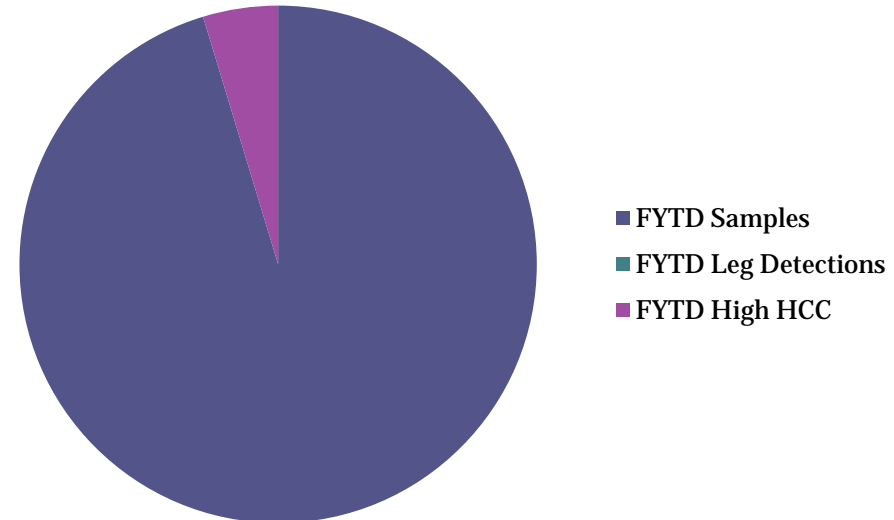


# Testing Results

**Last Financial Year**



**Financial Year to Date (July)**



# MDU Culturing of Bacteria

- Polymerase Chain Reaction – PCR
- Gene sequencing
- Culturing
- Difficulties
- Future research opportunities

# Legionella plate culture



# Case study: Unregistered CTS

- DHHS was informed of a recycling factory that was using a cooling tower – Unregistered and without any form water treatment.
- Upon inspection officers found 2 CTS on site 1 not in use.
- Located in enclosed area
- Water sample taken from operational CTS
- Results confirmed *Leg. Pneumophila* 5200 X min level (<10cfu/ml)

# Outcome

- Ordered immediate cessation of CTS
- Re-visited a few days later and owner had substituted for Air Cooled Unit.
- Returned under warrant to
- Register and treat water according to RMP

What next?

- Prosecution
- Official warning



# Thankyou

## Questions?

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