



# **Field study of Legionella in health care facilities in Australia**

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Hindmarsh Water Treatment

# Background

- Cases of Legionella infection increasing globally
- Emerging regulatory changes globally
- 'Risk based' management globally adopted
- Focus on health and aged care potable systems
- Fatalities in health and aged care much higher than rest of the population

# Data Collection

- 2 year period 2014 -2015
- Audited 124 aged and health care sites across Australia
- Over 750 routine samples taken (~6 per site)
- Recorded maintenance / disinfection procedures

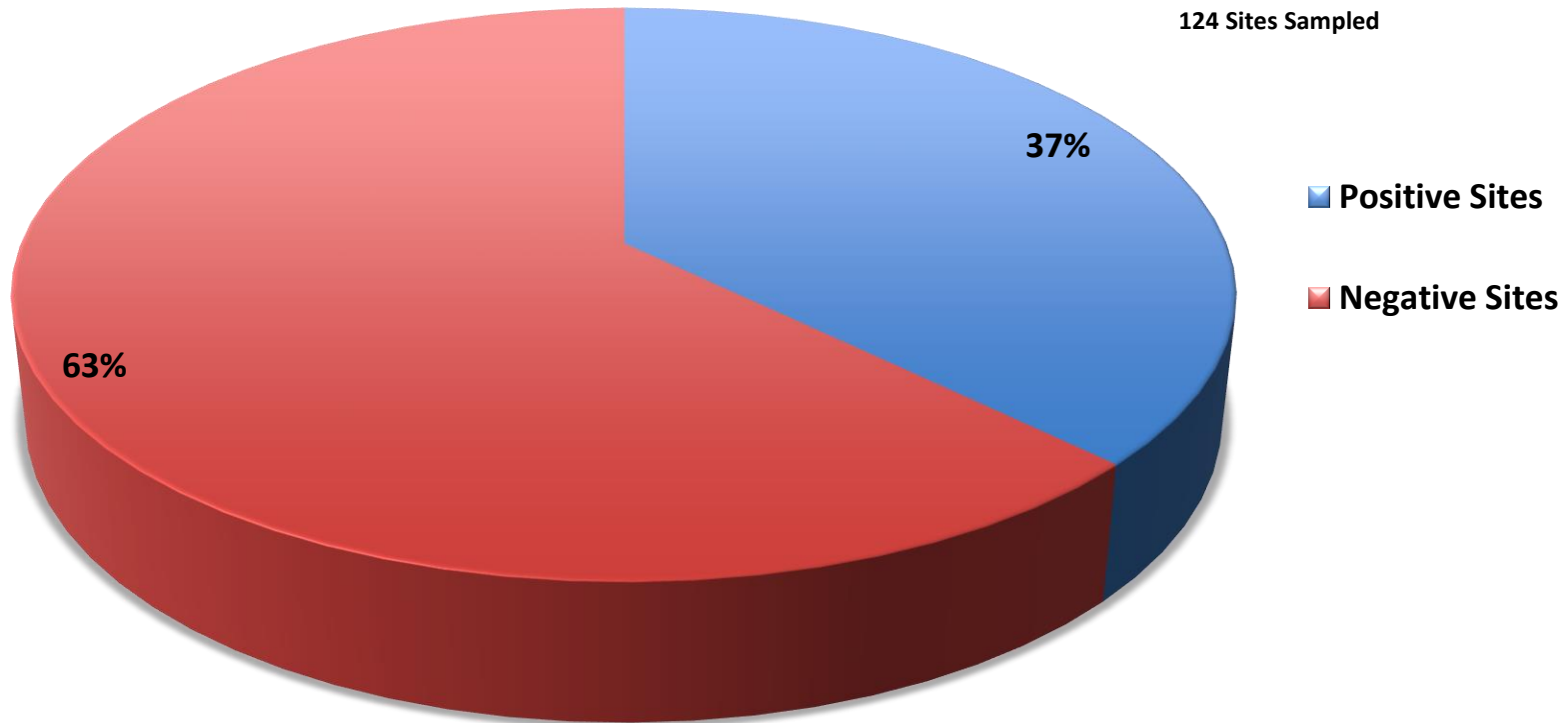
# Samples

- All samples sent to NATA accredited labs.
- Provided within 24 hours of sampling
- Recorded
  - Number of positives
  - Type of water system
  - Sampling points for samples
  - Legionella species detected
  - System condition

# Results 1. Prevalence

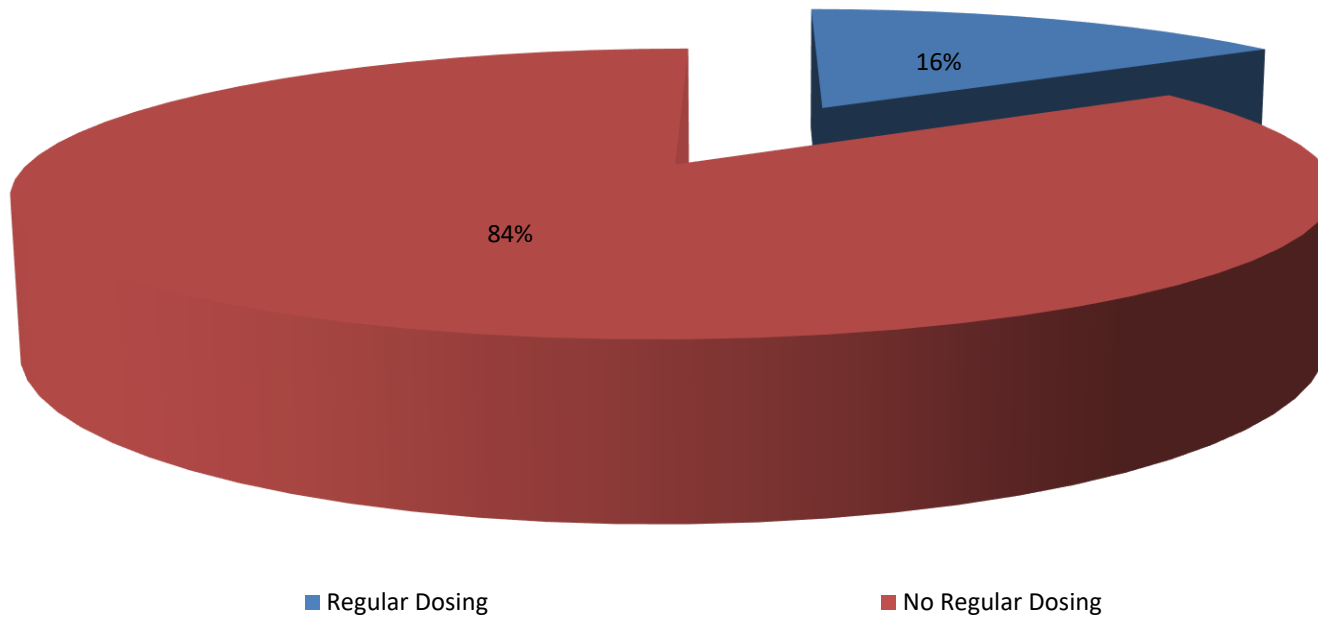
**Water Sample Results x Site**

124 Sites Sampled



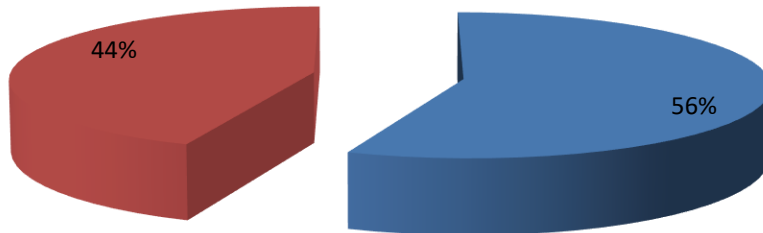
# Results 2. Disinfection

## Positive Sites



# Results 3. Maintenance

**Negative Sites**



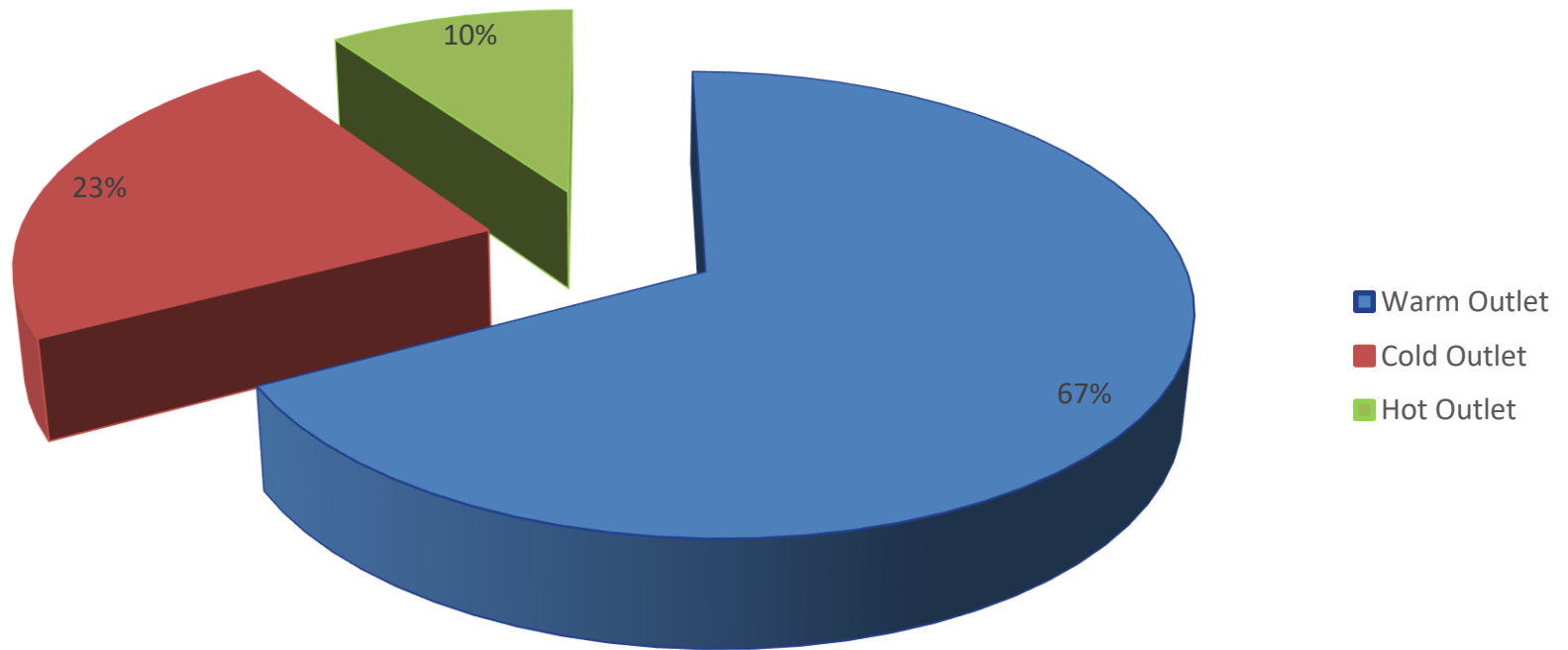
■ Programmed Maintenance ■ No Programmed Maintenance

**Positive Sites**



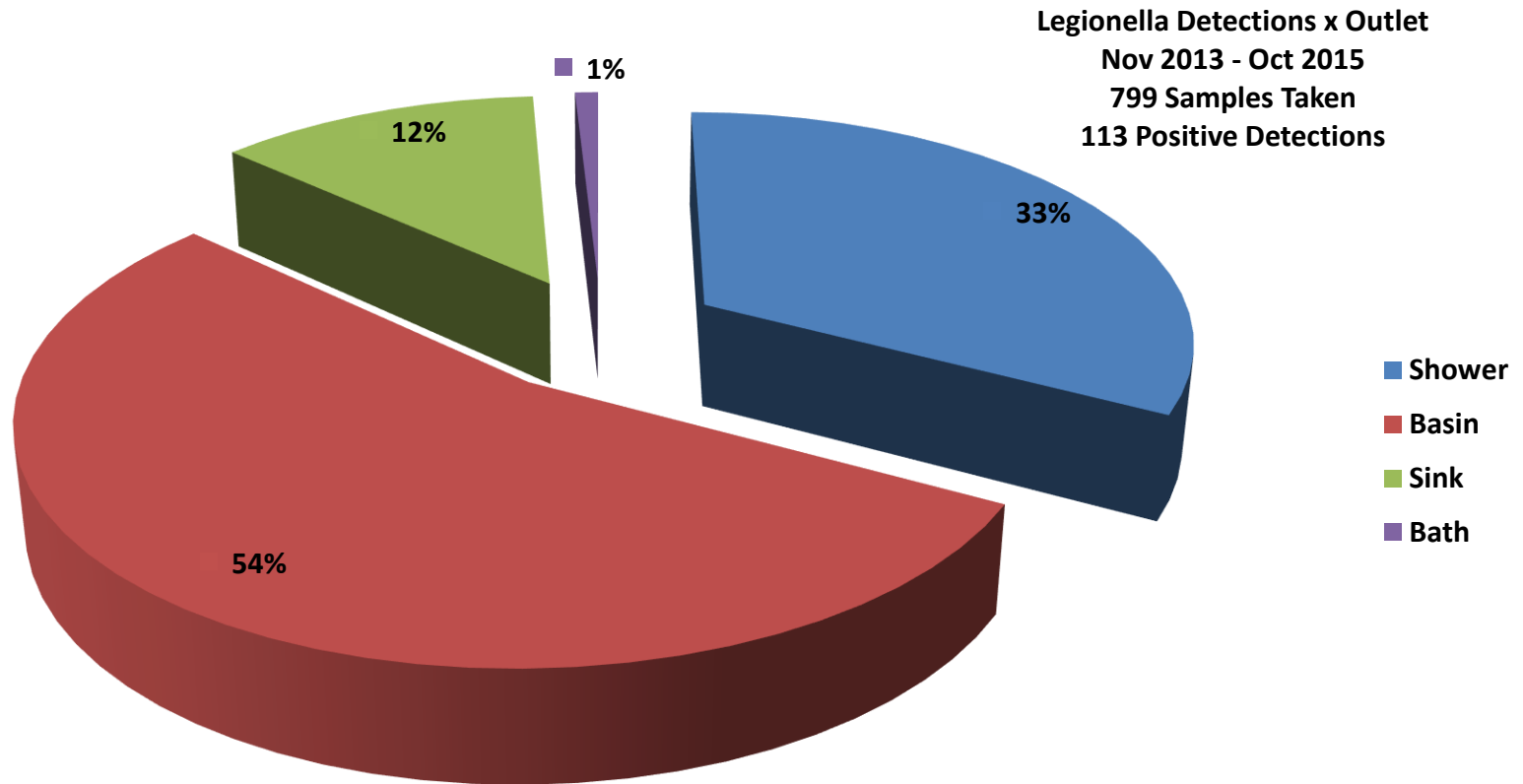
■ Programmed Maintenance ■ No Programmed Maintenance

# Results 4. Water Systems Legionella positive



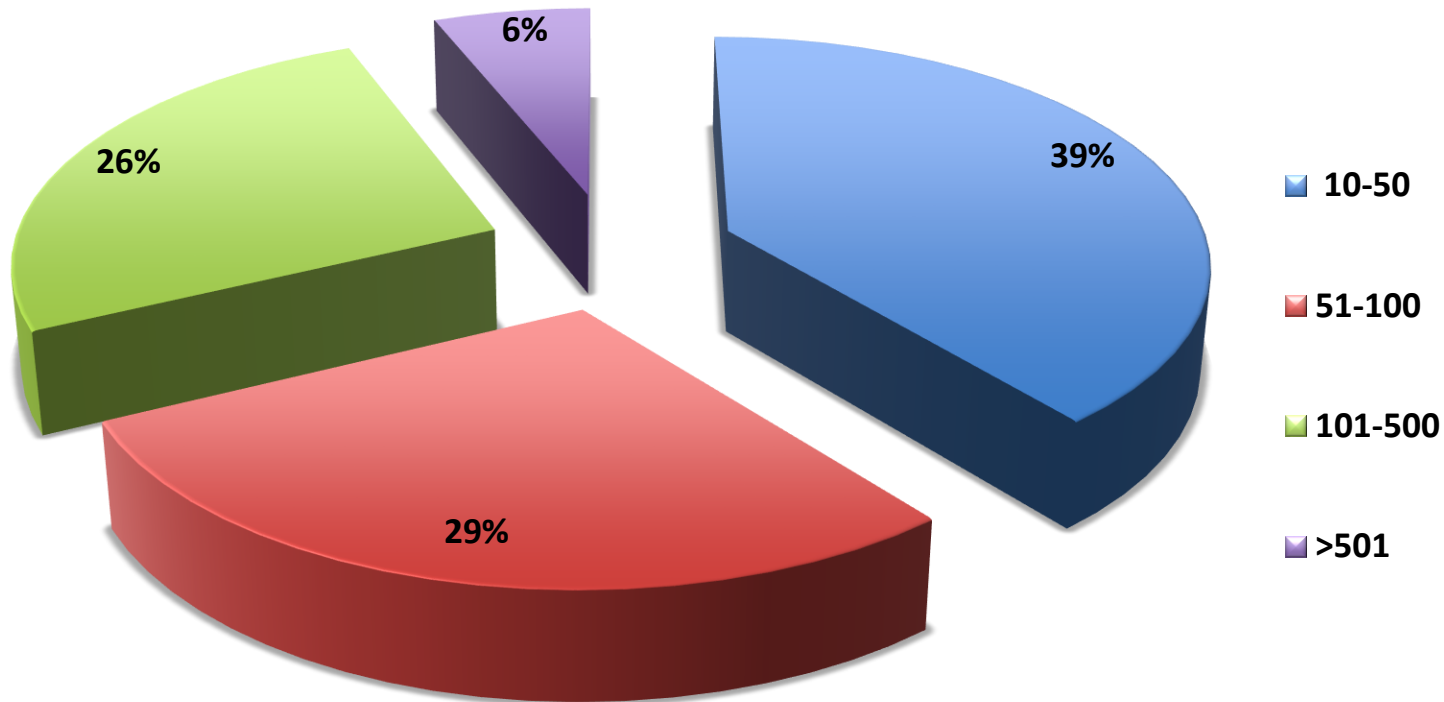


# Results 5. Outlets Legionella positive



# Results 6. Legionella counts

Distribution of Legionella culture results (cfu/mL) from aged care facilities

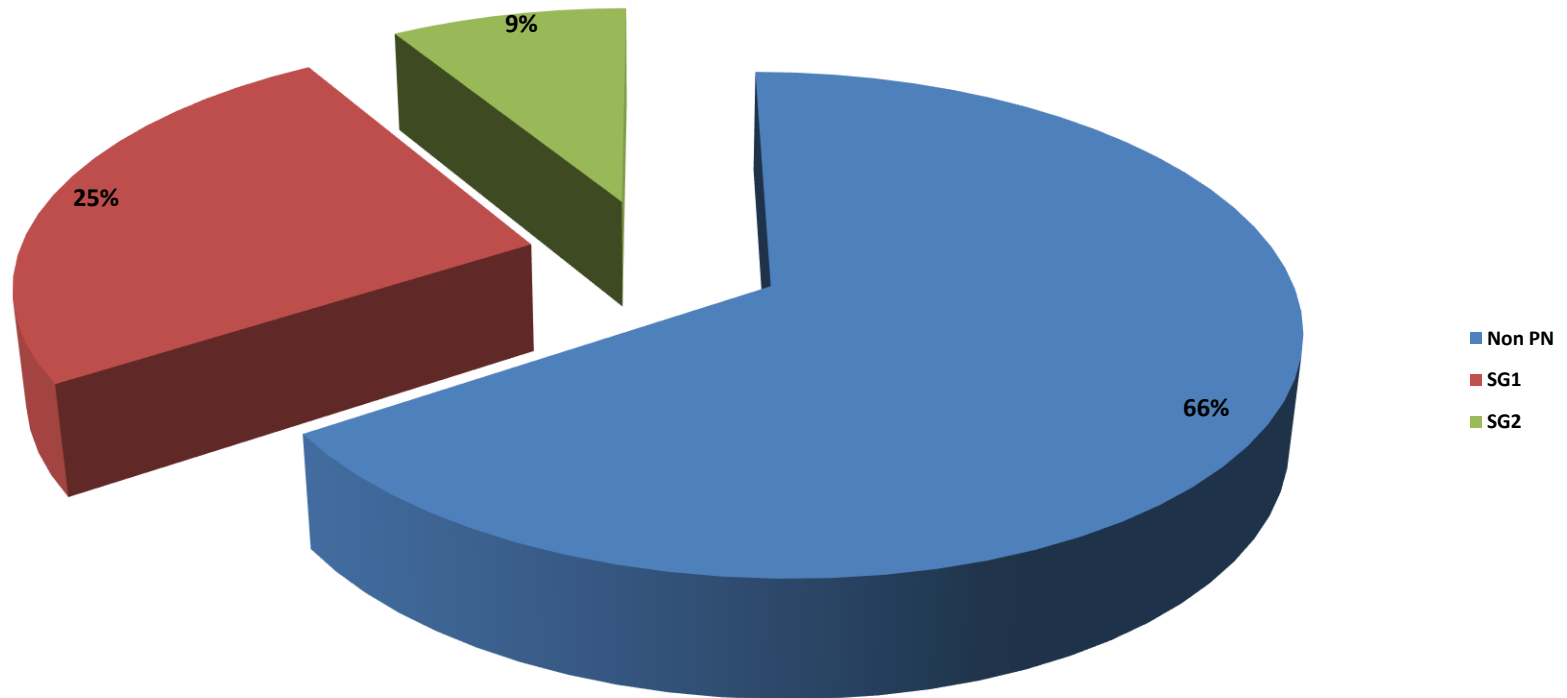


757 Water samples taken over 124 sites

Positives n=114

# Results 7. Species

Legionella speciation of positive samples for *L.pneumophila* SG1 (SG1), *L.pneumophila* SG2-14 (SG2) and other *Legionella* (Non PN)



757 Water samples taken over 124 sites

# Results 8. System condition

- A number of horror stories
- Hydraulic drawings exception not the rule
- Plumbing code compliance low
  - Backflow prevention
  - TMV / TV servicing and registers
  - Storage / delivery temperatures

# TMV maintenance

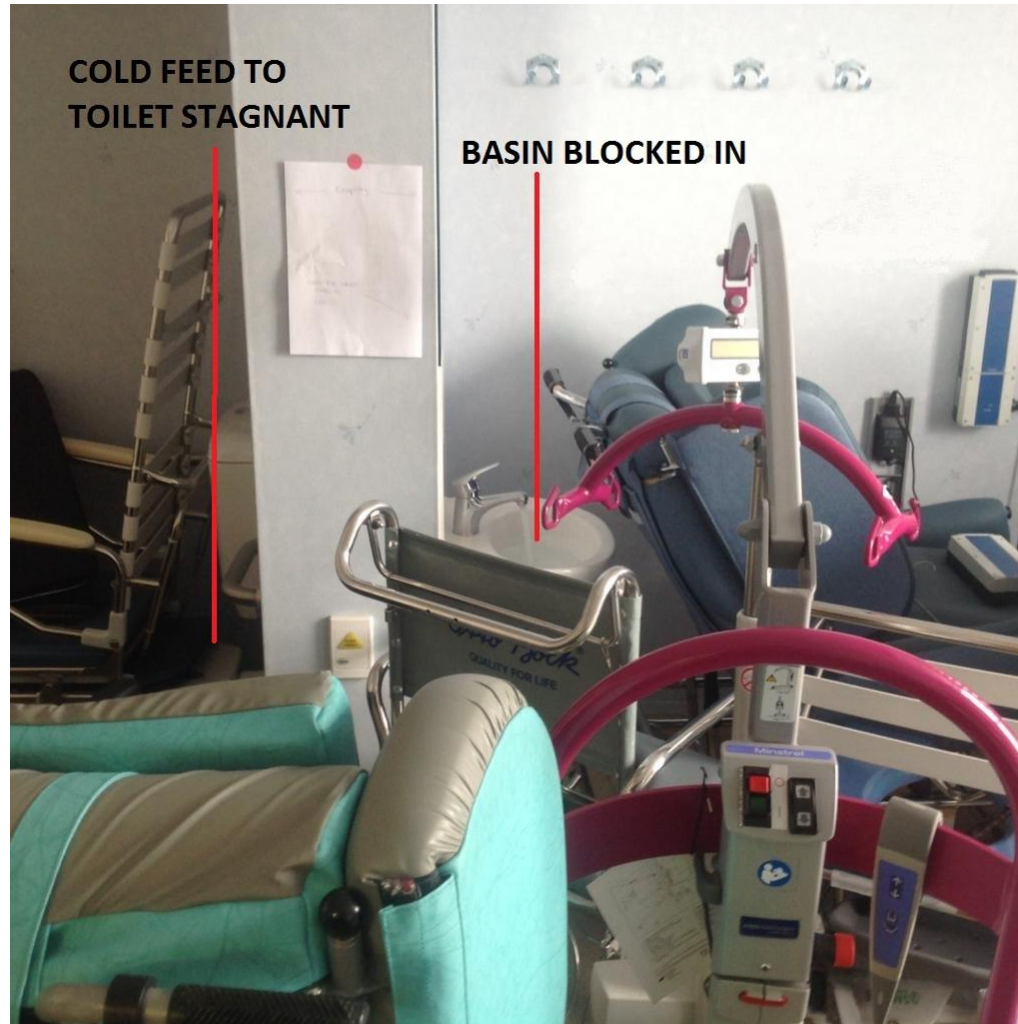


# Dead Legs





# Stagnation



# Aerators





# Flushing



# More stagnation



# Boil / Chill



# Conclusions

- 30%+ sites contaminated
- Regular disinfection reduces positives
- Routine maintenance reduces positives
- Warm systems most common positives
- Basin samples most common positives
- 'high' counts are rare
- Legionella species more common than Lp1

# Discussion

- Disinfection and maintenance do not solve the problem
- Cold and hot systems systems are a significant problem
- Basins are a good indicator sampling point
- Legionella spp.? Does this constitute a risk

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