

# *Legionella detections in newly commissioned health care buildings*

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# Wide Bay Hospital and Health Service

- One of 16 Hospital and Health services across the State;
- Includes local governments of Fraser Coast, Bundaberg, North Burnett and part of Gladstone Regional Council;
- Operates 10 hospitals and numerous health facilities;
- Employs approx 3,000 staff;

# LEGIONELLA AT HOSPITAL

- Outbreak discovered after man's death prompted extra tests
- Investigations ongoing to determine source of bacteria
- Patients banned from showers, told to drink bottled water

Clementine Norton

PATIENTS have been told to only drink bottled water and avoid the showers at

Hervey Bay Hospital after tests confirmed legionella in its water supply.

A patient who died at the facility was found to have le-

gionella on April 20, prompting further checks in addition to the hospital's routine water testing.

Yesterday, Wide Bay Hos-

pital and Health Service chief executive Adrian Pennington confirmed the bacteria had been found in the hospital and said the man's


cause of death was still being investigated, as well as the source of his legionella.

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Thursday, May 21, 2015

# No shower for childbirth as hospital defence

EXPECTANT mothers are concerned about not being able to shower during or after labour at Hervey Bay Hospital as efforts continue to rid the hospital's water system of the Legionella bacteria.

Hervey Bay's Jenni Cooper, who is due to give birth to her third child, said that not being able to use the showers while in labour was upsetting, but she felt for those who had babies at the hospital before the

 Babies are being either wiped over with the wash wipes or bottled water...

hospital discovered the Legionella outbreak and the fears those mothers must have had.

"I feel for those who have had babies and not only used the showers for themselves, but (gave) their babies their first baths in the hospital's water without

knowing its contamination status," Ms Cooper said.

A hospital spokesman said safety precautions remained in place.

The water systems have been flushed at the hospital since a dead patient tested positive for Legionella bacteria and the bacteria

was found in the hospital's water system.

The results from fresh tests on the hospital's water system are expected next week.

Wide Bay Hospital and Health Service chief executive Adrian Pennington said patient safety was a top priority.

"All admitted patients are using sponge baths until further notice," Mr Pennington said.

"Mothers are being

offered wet sponge packs as an alternative to showers," he said.

"Babies are being either wiped over with the wash wipes, or bottled water can be boiled and cooled and babies wiped down with that.

"Many babies have their first bath back at home with a Hervey Bay Hospital midwife present due to the new continuity of care model offered by the WBHHS."

# Water Quality Risk Management Plan

**Hervey Bay Hospital**



Water quality risk managements plans prepared for all facilities within WBHHS

**Plan includes all patient treatment facilities regardless of inpatient status**

**Hervey Bay Oral  
Health and Cancer  
Care Facility  
opened in July 2015  
Day facility only, no  
inpatient beds**

**GFA 2,570 m<sup>2</sup>  
90 tempered outlets  
11 hot outlets  
12 cold only outlets  
22 TMV  
15 POU Basin TMV's**





15 verification monitoring samples were collected from 5 outlets.

5 samples were positive for *Legionella pneumophila* from 4 of the 5 outlets tested.

All were either first grab or hot flush samples.

Heterotrophic Plate Counts were elevated in some samples.

**No cold water samples tested positive for *Legionella***

Flushing of all outlets was undertaken and outlets that previously failed receive additional flushing for a week then re-sampled.

Following flushing, 12 re-samples were collected from the 4 outlets .

5 re-samples were positive for *Legionella pneumophila* from 3 of the 4 outlets tested.

All were either first grab or hot flush samples.

Heterotrophic Plate Counts were elevated in some samples.

**No cold water samples tested positive for *Legionella***

## Action Plan

Two bathrooms with *Legionella* were closed;  
Remaining showers in building were taken out of service;  
Full review of the water system operations was undertaken;  
Media Release and consultation with staff in building;  
**All measures gave priority to patient safety**



Heat treatment of all hot/warm water outlets was immediately carried out; 70° C for 5 minutes.

Re-sampling was proposed 1 week following hot flush



## Problem Exposed



## 80% of aerators contained unacceptable levels of debris



Debris in water system included

- Shards of brass, copper and plastic;
- Saw dust type material;
- Black/white grit and sediment;
- Thread tape;
- White thread paste;



In hindsight we were not well enough prepared given the unexpected level of debris in the system.

### **Action Plan**

Conducted flush of the cold water system to remove debris  
Clean and sanitise aerators.

### **Re-sampling**

Re-sampling was expanded to 49 samples including cold water and the drink fountain in Oral Health.

### **Results**

All hot/warm water samples passed however 11 samples from 8 cold water outlets tested positive for *Legionella pneumophila* from including from both drink fountains in the building. These were removed from the building.

Heterotrophic Plates counts were elevated in a number of samples.

# Drink Fountains

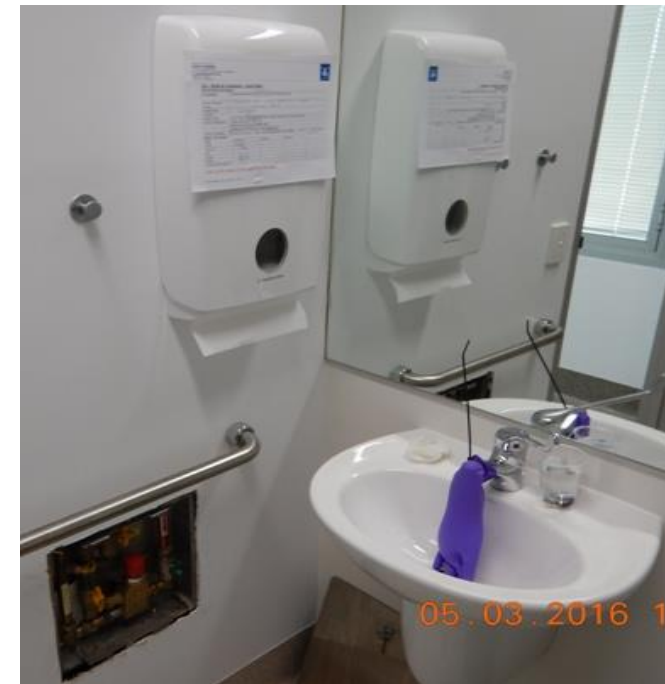


# Hyper-chlorination Treatment undertaken over weekend



Chlorine Injection

Shower Gloved



Basin Gloved

# *Still Legionella pneumophila*

Re-sampling was conducted following treatment.

Of the 12 re-samples there was a single *Legionella* detection and a number of outlets still had elevated HPC.

Another hyper-chlorination treatment over two days was therefore recommended.

**All re-samples following this final treatment were clear of *Legionella* and HPC was within acceptable limits.**

# Bundaberg Oral Health and Cancer Care

Similar new facility, day treatment only (no inpatients)

51 samples collected and *Legionella non pneumophila* was detected in 5 samples from 4 outlets at 3 locations;

All detections were in Cancer Care and none in Oral Health;

Heterotrophic Plates counts were elevated in a number of samples;

As a precaution one Cancer Care treatment room was closed;  
A targeted heat treatment of the affected area was undertaken followed by a heat treatment and hyper-chlorination of the entire building over 2 days;

## Hot Water Booster Unit



**HW Booster Connection**

After the combined  
hyper-chlorination and  
heat treatment with  
the hot water booster

**No *Legionella* was  
detected in re-samples**



Hot Water Booster Bundy

# Prevention is better than cure

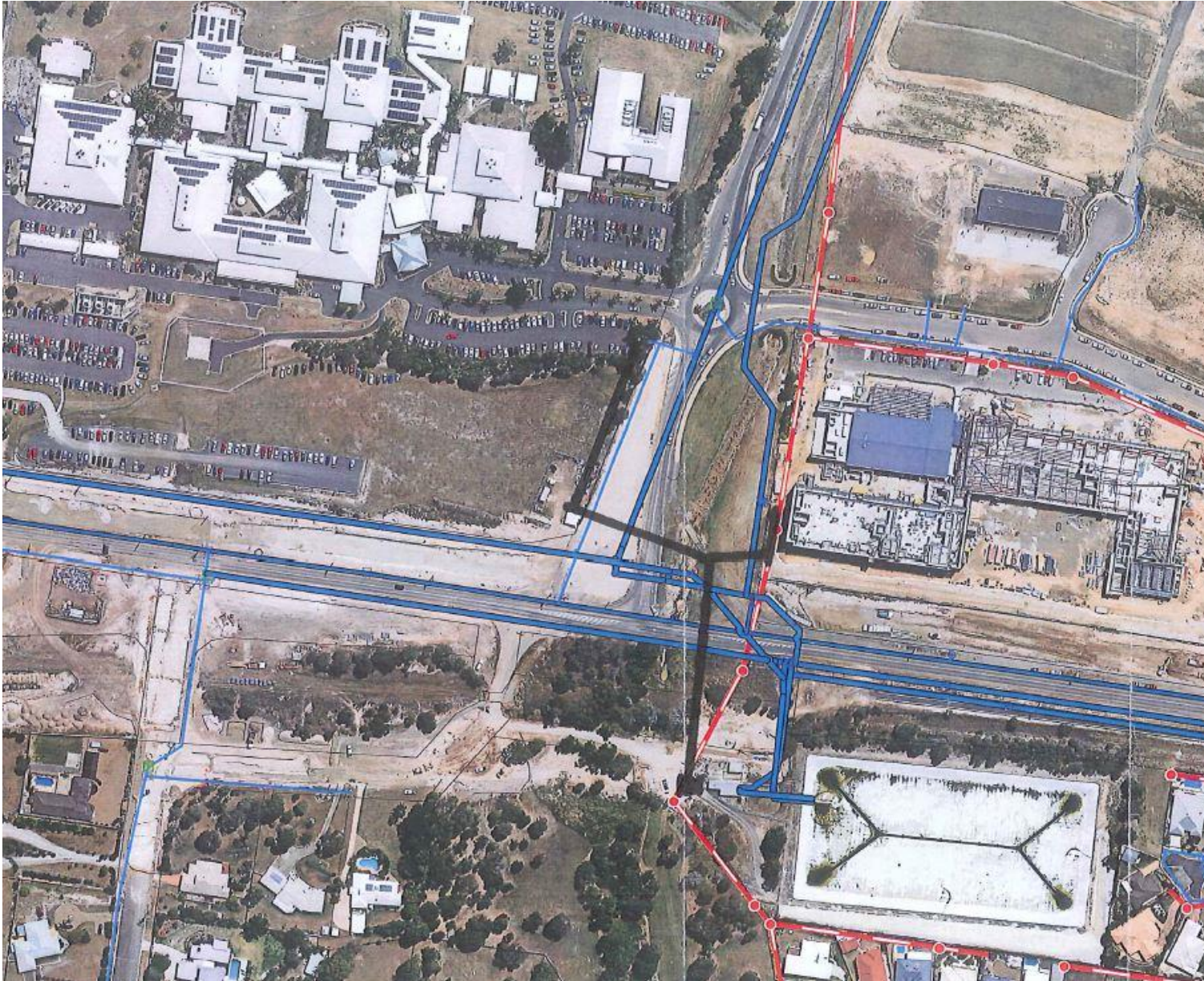
- **Commissioning of water systems in health care facilities must be taken seriously;**
- Commissioning should start at the beginning of the project not at the end;
- Health Care facilities have complex plumbing systems;
- More complex systems require more complex commissioning;
- **Health Care facilities are provided to protect some of the most vulnerable in our communities;**
- Health Care facility owners must engage with architects and consultants at the design phase and with builders and contractors at pre-start to make clear what their expectations are irrespective of legislative requirements;
- **Evidence that water systems have been satisfactorily commissioned must be substantiated.**

## **WS17: Commissioning of Water System**

On completion of all works the Trade Contractor is to supply a water quality analysis report from a NATA accredited laboratory confirming the water system has been commissioned in accordance with AS3500.1.

No less than 5% of all outlets are to be tested in accordance with the Queensland Health Guidelines for Managing Microbial Water Quality in Health Facilities 2013 and sampling is to be done by the triplicate method to ensure the following criteria are met:

- *Legionella* species <10cfu/mL
- Heterotrophic Colony Count <500cfu/mL



# Hospital Emergency Pipeline System

### **Hospital Emergency Pipeline System - Water Quality Testing Protocol**

As part of commissioning the emergency water supply system water quality testing is to be undertaken. The Wide Bay Public Health Unit will collect samples from three dedicated water sampling taps that have been installed within the system. Samples will be submitted to Queensland Health Forensic and Scientific Services (QHFSS) laboratory for analysis. All sampling will be carried out in accordance with established QHFSS protocols. QHFSS is a NATA accredited laboratory for all the parameters being tested.

The following outlines the sample location, types of samples that will be taken and the acceptable limits. These limits equal or exceed current guidelines for microbial water quality in health facilities.

In respect of microbiological testing each tap will be sampled on three consecutive occasions, no less than 20 hours between each sample. Triplicate sampling will ensure beyond reasonable doubt water quality from the new emergency water pipeline is safe and suitable and also ensures there is no contamination of existing hospital water systems.

All microbiological samples must not exceed any of the acceptable limits. Should there be a sample failure the emergency water pipeline will be re-flushed and re-sanitized. The sample tap will be then be re-sampled in triplicate.

The first sample point is located at the end of the 300mm pipe before it bifurcates into the two (2) 200mm pipes for each hospital. The code for this will be WBW – SP1.

The second sample point is at the end of the 200mm pipe to the Hervey Bay Hospital. The code for this will be HBH – SP2.

The third sample point will be at the end of the 200mm pipe to the Uniting Church Hospital. The code for this will be UCH – SP3.

Parameter	Location	Acceptable limit	Comments
Coliform	WBW – SP1 HBH – SP2 UCH – SP3	Nil detected	3 consecutive samples
<i>E coli</i>	WBW – SP1 HBH – SP2 UCH – SP3	Nil detected	3 consecutive samples
Heterotrophic plate count (HPC)	WBW – SP1 HBH – SP2 UCH – SP3	<100 cfu/mL	3 consecutive samples
<i>Legionella</i> species	WBW – SP1 HBH – SP2 UCH – SP3	0.1 cfu/mL	1 Litre Sample 3 consecutive samples
<i>Legionella pneumophila</i>	WBW – SP1 HBH – SP2 UCH – SP3	0.1cfu/mL	1 Litre Sample 3 consecutive samples
Standard Water Analysis Chemical	WBW – SP1 HBH – SP2 UCH – SP3	As per Australian Drinking Water Guidelines	QHFSS has a standard set of physio chemical parameters that are tested in potable water
Heavy Metals	WBW – SP1	As per Australian Drinking Water Guidelines	QHFSS has a standard set of heavy metals that are tested in potable water.

