Legionella Outbreaks 2016 –
A detailed overview

Environmental Health Branch

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Overview

• CBD Cluster 1
• Urinary Antigen Testing
• Kogarah Cluster
• Hurstville / Burwood
• CBD Cluster 2
• Expert Panel
CBD 1 Cluster

Wednesday 9\textsuperscript{th} March – 4 cases confirmed with links to CBD, 9 cases in total

- Onsets: mostly 13 Feb to 3 March, outliers 24 Dec15, 8 Feb 16
- Most exposures 22 Feb to 1 March 2016
Sydney CBD 1 Outbreak

Legionella outbreak means:

‘Where more than one case of Legionnaires' disease reports a common exposure (within 100 metres over a 3 month period), an outbreak investigation should be initiated’.

What prompted the response?

- Four (4) cases notified (CDB)
- All cases were UA positive
Urinary Antigen Test Information

UA test is the preferred initial test for LD.

It is rapid, inexpensive and practical for the detection of L pneumophila antigen excreted in the urine or present in pleural (lung) fluid.

The main disadvantage of UA test - only detects Lp SG 1.

SG1 causes most cases of Legionnaires disease so this is the recommended test.

Other tests for Lp include

- cultures of sputum,
- lower respiratory tract secretions, tissue, or blood
- PCR (species ID)
Case Interview

National Legionella Questionnaire Patient identification

- Confirmation of diagnosis
- Details of illness
- Risk factors
- Exposures

### NATIONAL LEGIONELLA QUESTIONNAIRE

#### Interview form for CASES

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<td>Occupation/school:</td>
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<td>Country of birth:</td>
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<tr>
<td>Indigenous status:</td>
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<tr>
<td>Aboriginal but not Torres Strait Islander origin</td>
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<td>Language:</td>
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Was this interview conducted on behalf of the participant?  
Yes | No

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<th>3. NEXT OF KIN (WHERE NECESSARY for patient/illness)</th>
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Risk Factors considered

- Smoking history
- Alcohol consumption
- Health conditions
- Immunosuppressive medications
- Travel history
- Employment details
Patient on Admission –

Presented with:

- Non-productive dry cough
- Severe Fatigue
- Shortness of Breath
- Fever/chills
X-ray of 60yr Old Male on admission
Legionella Pneumophilla in a Human Lung – 24 hrs later
Sydney CBD 1 Outbreak continued

• All cases spent considerable time in Sydney CBD around Market/George/Druitt/Sussex street

(NSW Health GL: Where more than one case of Legionnaires' disease reports a common exposure (within 100 metres over a 3 month period)

Initial Actions

• PHU’s interviewing cases/carers about all possible exposures

• Mapping movements of cases during the exposure period

• An urgent environmental assessment including a search for possible sources of aerosol generation that are likely to have travelled to the vicinity in which the cases were potentially exposed.
CBD 1 Environmental Investigation

Goals

• Identify other possible cases (Public Health Units)
• Prevent further cases from occurring, and attempt to identify source (Env. Investigation)
CBD 1 Environmental Investigation

Rapid Planning

Contact agencies likely to play a role in the investigation:

City of Sydney | Integra | FASS | Toll | NSW Pathology Laboratories | NSW Health Pathology | NSW Health Legal Department | Public Health Units | Communications

T/C’s were held with affected PHU’s, City of Sydney, EHB, Media, Office of the CHO plus many others (Planning).

Initial sampling area identified: Clarence, King, Park and Pitt streets, later extended to Druitt to the South and Elizabeth to the East.

ICS Structure implemented and deployed
CBD 1 Environmental Investigation – ICS

Incident Controller

Environmental Investigations

Emergency Operations Centre Set up

Emergency Op Controller

Site Controller

Team Coord
CBD 1 Environmental Investigation

Set-up

• A field team of environmental health officers from City of Sydney, EHB and other public health units was set up at City of Sydney (Town Hall)

• Sampling area included Park, Bathurst, Kent and Pitt street

• And this is what we found…
Cooling Tower 1 – Before Cleaning
24 hrs after WTC ‘cleaned’ the cooling tower
Unregulated Legionella Sources
Results

134 Sites visited ~ 200 samples collected

3 unregistered towers identified

WTC reported tower with High Legionella

2 towers unclean, Section 33 Order to shut down and decontaminate
Results

11 systems positive for Legionella

Results between 10cfu/mL to 2,500cfu/mL

2 towers issued Prohibition Orders in response to high Legionella result
  • One tower was the site reported by WTC

9 systems issued Improvement Notice, Section 33 Order or Warning Letter.

No unregistered or unregulated systems tested positive for Legionella
A MAN has died following an outbreak of Legionnaires' disease in Sydney.

The 80-year-old, who died on the same day he contracted the disease, which is suspiciously linked to Sydney Town Hall.

People began showing symptoms of the disease as early as last week.

The Director of Communicable Diseases said the man had a "serious underlying condition".

"The same strain of Legionnaires' as the previous cases was identified in a man in his 80s who died over the weekend," Dr Vicky Sheppard said.

"The man spent time within Sydney's CBD region in late February, the same period as the other cases."

In total, nine men aged between 30 and 90 picked up the bacterial lung infection from the outbreak.

Symptoms include fever, chills, a cough and shortness of breath.

Media
Kogarah Cluster

On Thursday 31 March notification of 3 Legionellosis (*L. pneumophila sg1*) with links to Kogarah and Hurstville,
- Onsets 25/3 & 26/3
- exposures 15/3 to 24/3

St George Hospital self reported positive 4,500cfu/mL *L. pneumophila sg1* identified by their own sampling, collected 22/3

14 cooling tower water cooling systems sampled and 2 water features
Hurstville Environmental Investigation

Thursday 31 March further information identified exposures in Hurstville

Mapping of Hurstville completed

EOC set up at Hurstville Council Friday 1st April

7 field teams, One organiser at Randwick PHU, organiser at Hurstville

33 Cooling tower systems, One water fountain
Hurstville Investigation Area
Hurstville EOC

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<th>N° Sample Collected</th>
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Annie: 0407 574 601
Lydia: 0429 775 288
Sharon: 0475 971 112
Phil: 0410 388 777
Thomas: 0401 869 203
Alex: 0401 758 004
Nahla: 0478 803 061
Jessie: 0411 743 260
Bradley: 0421 057 894
George: 0411 744 458
Toni: 0401 453 170
Bob: No mobile.
Kogarah Results

Prohibition Order issued to tower visually unclean with sediment and algae

Another two towers voluntarily
  shut down and decontaminated
  after being found unclean

No samples in Kogarah collected by investigation team were positive for Legionella

The two towers that voluntarily shut down had high HPC
Hurstville Results

3 cooling towers were unclean
  • Voluntarily shut down and decontaminated

1 cooling tower 100cfu/mL *L. pneumophila* **sg1**
  • Tower had already been decontaminated before result received.

2 towers with potential safe access breaches
Legionnaires outbreak may have started at St George Hospital

Three people may have contracted legionnaires disease while visiting St George Hospital in Kogarah.

Three people hospitalised with legionnaires disease in southern Sydney may have contracted the illness in the very hospital they are recovering in.

Two men, aged 62 and 76 and a woman, 86, are currently being treated for the bacterial lung infection at St George Hospital.

It was determined the three patients had all visited St George Hospital and certain areas around Kogarah between March 11 and 26.

Legionnaires Disease Alert for Hurstville and Kogarah areas

Legionnaires Disease Alert for Hurstville and Kogarah areas
CBD 2 Cluster

Tuesday 4th May notified of cases linked to CBD. By end of investigation 4 cases
- Onsets 25/4 to 1/5
- Exposures between 14/4 to 28/4

Wednesday 4/5 EOC set up at City of Sydney

Identify and sample all potential environmental sources of Legionella in the investigation area.
CBD 2 Cluster

Monday 9\textsuperscript{th} May further information implicated Circular Quay

10\textsuperscript{th} May EOC at Sydney City Council

Sampling of all high risk towers in the area around Circular Quay

Risk assessment of towers based on records, sampling and Inspection to investigate the towers long term
Results

94 Sites visited - 120 samples collected

2 towers unclean, Section 33 Order to shut down and decontaminate

4 systems positive for Legionella
• 9,800 cfu/mL *L. pneumophila* sg1
• 190 cfu/mL *L. pneumophila* sg1
• 20 cfu/mL *L. pneumophila* sg1
• 60 cfu/mL *L. pneumophila* sg1 (site had failed sample in CBD1)
Results

1 system issued Prohibition Order

1 system issued Improvement Notice for failed sample

2 systems issued warning letters

1 system issued Improvement Notice for not having Operations & Maintenance Manual

2 pending Improvement Notices for unsafe access

4 Prosecutions pending (initiated by NSW Health)
Another outbreak of Legionnaires in Sydney

MAY 4, 2016 3:43PM

SYDNEY has been struck by a fresh outbreak of the potentially deadly Legionnaires’ disease — hot on the heels of an earlier outbreak in March.

Three people have been diagnosed since last Friday — one person is fighting for their life and two others are in hospital after contracting the infection after spending time in the CBD since last Friday.

There is no evidence the cases are linked to an earlier city outbreak in March, which claimed an elderly man’s life.

“People who have recently lived, visited or worked in the area (Sydney CBD blocks bordered by Margaret, Kent, King and George Streets) and develop symptoms of Legionnaires disease should visit their GP,” NSW Health spokeswoman Dr Vicky Sheppeard told reporters in Sydney.

New Legionnaires' disease outbreak in Sydney CBD

May 4, 2016

Harriet Alexander, Health reporter

Water cooling tower suspected in outbreak

Three people have been diagnosed with Legionnaires' disease since Anzac Day in the second outbreak to affect Sydney's CBD this year.

NSW Health and the City of Sydney are inspecting 67 cooling towers in the area bounded by Margaret, Kent, King and George streets, where all three patients had spent time before their
The Fallout

- Media and communication was a major undertaking
- Multiple debriefing sessions at the local and state level
- Informal teleconferences
- Formation of an internal legionella working group
NSW Health established a Legionella expert panel to advise the Chief Health Officer on whether any new measures are required to strengthen prevention and control activities.
Expert Panel

Composition of Panel:

- Public health physicians,
- Environmental health officers,
- Infectious disease physician,
- Legal expert,
- Industry experts,
- Mechanical engineers; and
- Local government representation
Expert Panel

Objectives:
• To review existing regulations, policies and procedures in NSW,
• To evaluate how they compare with other jurisdictions, nationally and internationally,
• To look at lessons learned from the recent outbreak investigations; and
• To provide advice and recommendations regarding changes related to Legionella practices in NSW.
Consultation

Two Representatives from NSW Health attended a meeting with VIC DHHS to discuss the model for legionella regulation.

Investigated pros and cons

Held meetings with NSW Food Authority re – regulatory partnership models

Held targeted consultation with OLG, LGNSW, Hydro Chem, Integra etc
Next Steps

Recommendations by the expert panel have been drafted and the areas being considered are:

• Setting **minimum** cleaning and maintenance standards
• Setting **regular** sampling requirements of cfu and HCC/HPC
• Introducing **more responsibility and requirements** for building owners
• Introducing **notification requirements for laboratories** to notify set levels of cfu/ml and HCC/HPC/ml
• Specifying the role of local government in legionella work
Next Steps

Draft recommendation will be submitted to the Office of the Deputy Secretary.

Draft recommendations have been included in the Public Health Act review for information – due to be sent to E-Cabinet very soon.

Review of the 2004 Code of Practice for the Control of Legionnaires Disease – on hold
QUESTIONS?

Thank You 😊