



Notification of *Legionella* Detections: Frequent Flyers

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What will be discussed


- > What is a frequent flyer?
- > How can you use notification data?
- > Why use notification data?
- > Roles and responsibilities
- > Options
- > Management

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What is a frequent flyer?

- > Repeated Legionella detections (more than 3)
- > HRMWS as defined by the *South Australian Public Health (Legionella) Regulations 2013*
 - CWS
 - WWS

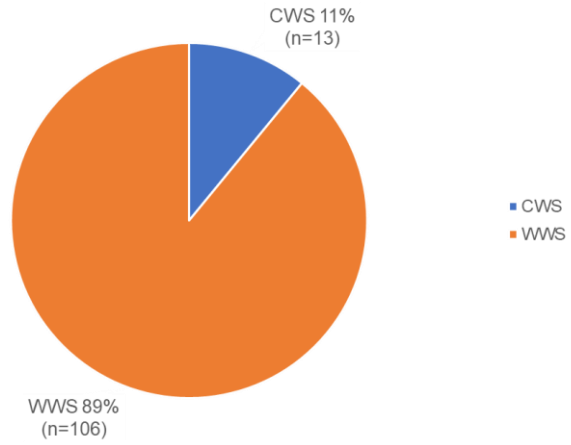


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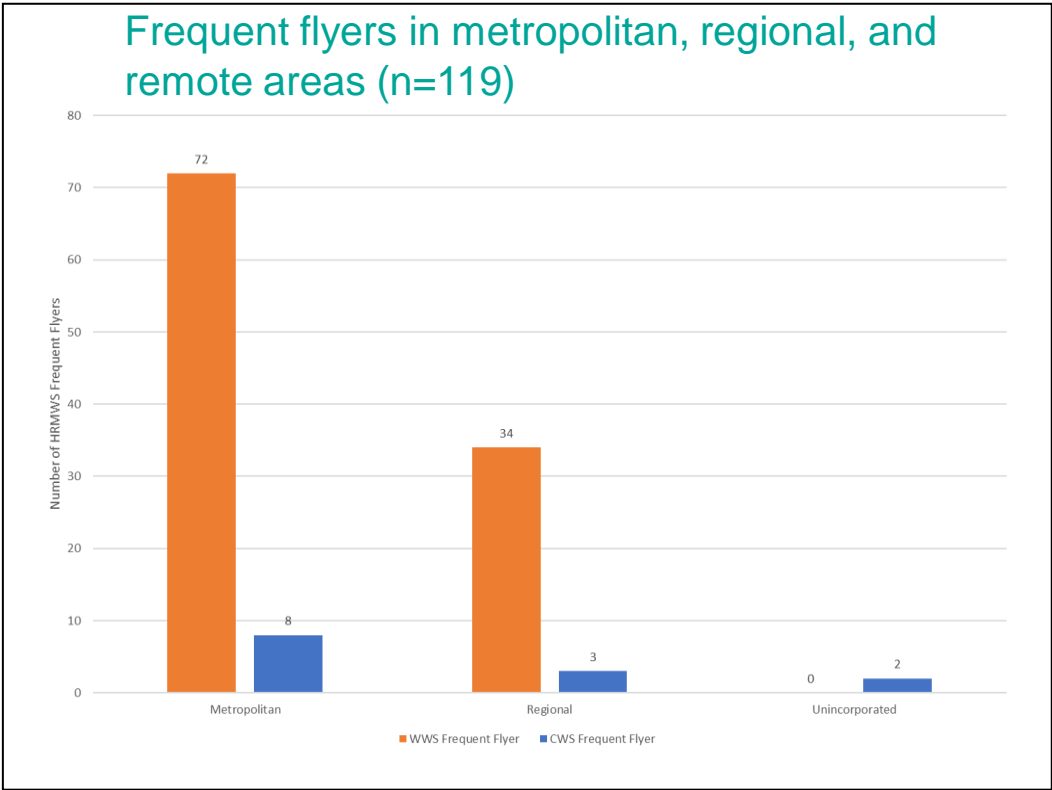
Frequent flyer is a term to describe premises/facilities identified as having repeated Legionella detections (more than 3) at any point in time.

- Data range from 2008 - 2023.
- Frequent flyers discussed are from the same premises/facilities. Notification data and its reporting of sample sources (which systems at a facility) is hard to interpret and incomplete.
- Data is of notifications of detections in CWS and WWS only.

Distribution of frequent flyers in all HRMWS (n=119)

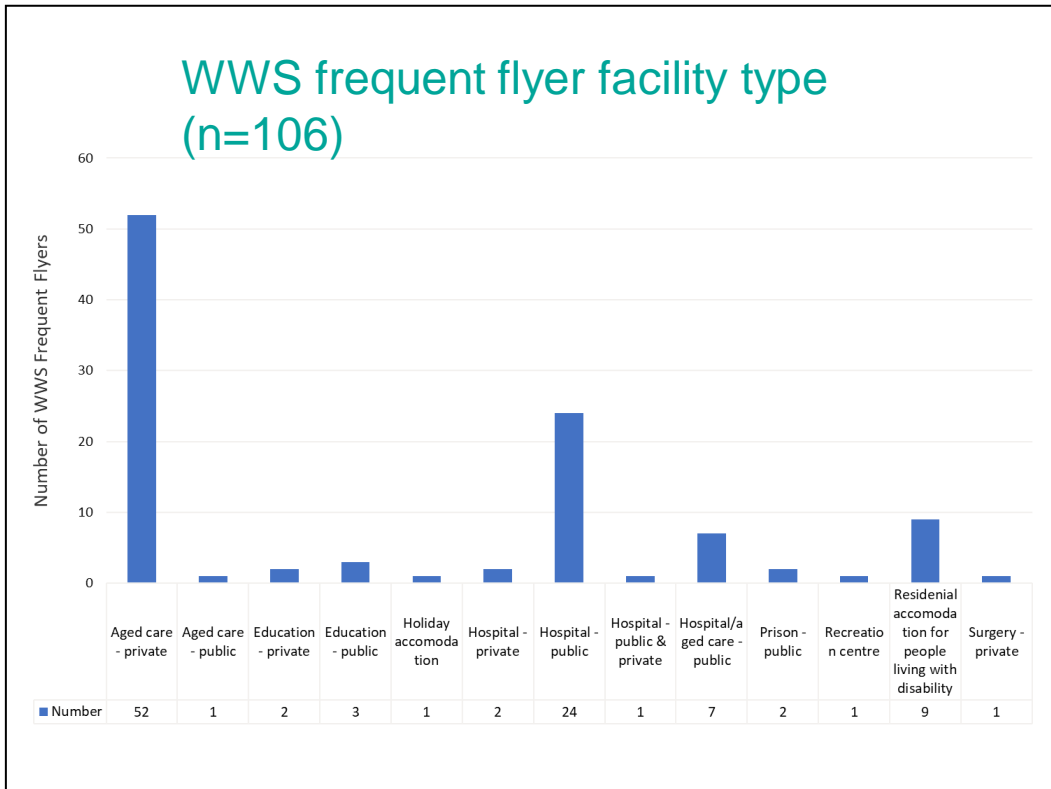


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This graph shows the number of frequent flyers according to geographical distribution

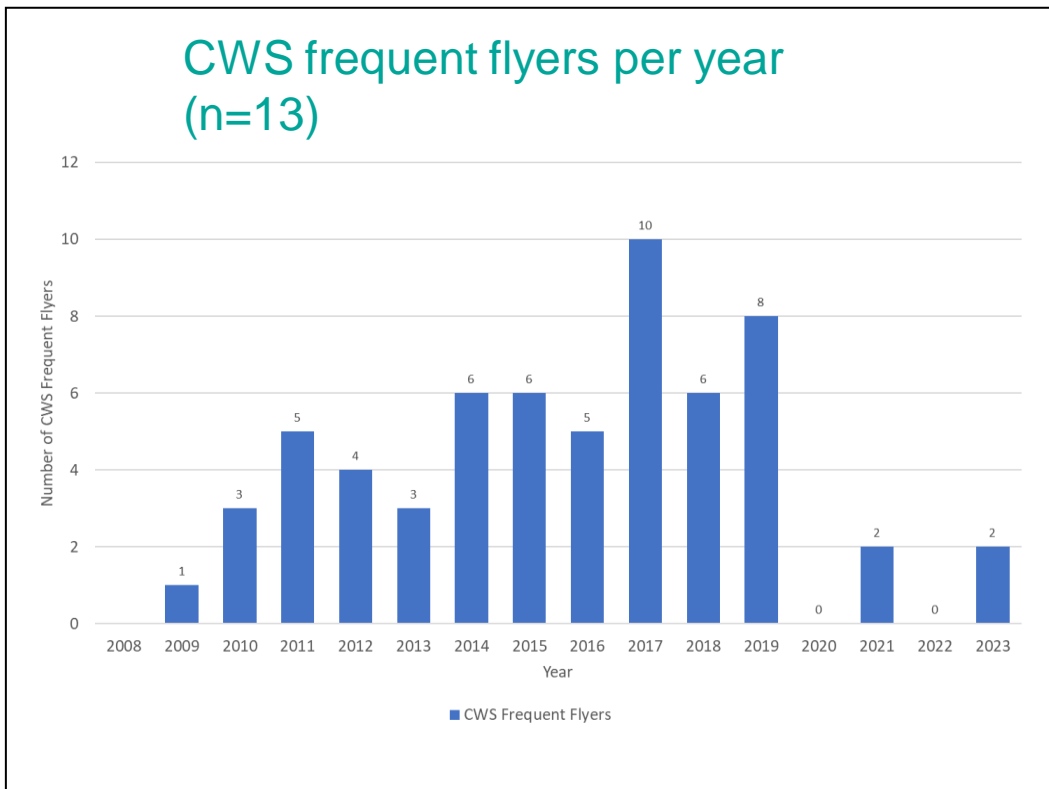
- metropolitan areas, regional areas, and unincorporated areas.
- The unincorporated areas are those which are regulated by authorized officers from the Health Protection Operations team at SA Health.
- Double the number of frequent flyer WWS in metro areas as compared to regional areas.
- Metro frequent flyers account for 67%
- Regional frequent flyers account for 33%



This graph shows the number of WWS frequent flyers according to facility type. Total of 106.

- 90% are health/aged care facilities.

This helps when understanding risk of Legionella colonization and susceptibility of individuals exposed in this facilities.




This graph shows the number of CWS frequent flyers with repeat detections that pop up each year. This isn't the identification of new frequent flyers each year which is why the numbers add up to more than 13.

- 2017 was the largest year for detections in the frequent flyers.
- With regard to LP1 cases, 2017 was also the year we had two clusters of Legionnaires in Adelaide, during the summer months, with cases identified as having exposure periods around the time of the Adelaide Fringe.



How can you use notification data when looking at frequent flyers?

- important to consider how you collect the notification data and how you currently monitor and record it to make using it easier.



Using notification data

- > Identify frequent flyer
 - Number of detections, frequency, duration
- > How are detections identified?
 - Routine inspection sample?
 - Council
 - Independent inspector
 - Regular sampling regime?

PART 6: SAMPLE DETAILS AND RESULTS					
Enter sample details below - up to a maximum of five sample results (collected from the same system on the same date) per notification form. Please attach copies of laboratory reports if available.					
Sample date	Sample type*	Sample source	Results - cfu/mL Legionella		
			LP1	LP2-14	L Species

*Routine sample, council inspection, independent inspection, post decontamination test, disease investigation or other (provide details).

Frequent flyers are most prevalent in WWS - and majority of these are located in health and aged care facilities.

The remainder of this presentation will focus on WWS.

If you think you have identified a facility/premise/system you'll want to look more closely at those detections.

The data can help you to identify the questions that need to be asked, and the investigations that need to be undertaken by the system owner/operator.


- You'll want to check firstly the number of detections that have been notified to council in total.
- You'll then want to look at the frequency of detections. Is there some pattern to this?
 - Is it after every sample taken?
 - Over what duration have detections been notified?

This can help to determine if the detections are as a result of a change to the facility in some way.

You'll then want to look further into **how detections are identified**.

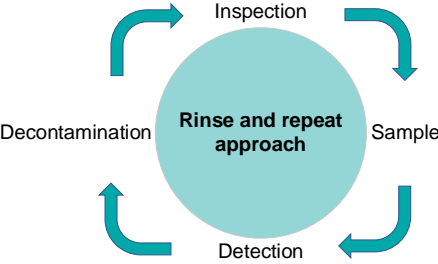
You can determine this by looking through your records at the sample types as they're recorded on the notification forms (part 6).

- Are detections **identified during routine sampling**? Further detections post decontamination? This can help to identify the effectiveness of decontamination.
- **Independent inspections** or **council inspections**? If independent inspectors have been inspecting, how much have inspection reports been scrutinized and how confident is council in the actual compliance of the system and its demonstrated Legionella risk management?
- Are they as a result of samples taken during routine inspections only? If yes, is any further testing carried out to help further investigate potential colonization?



Using notification data

The “rinse and repeat” approach



- > What decontamination is undertaken?
 - Pasteurisation – rinse and repeat approach?
 - Chlorination: residual or responsive?
- > Are detections widespread or localized?

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The identification of frequent flyers can indicate there can be compliance with the regulations without adequate control of legionella – the rinse and repeat approach highlights this.

The diagram shows this approach:

- Samples may be taken only during inspections and may result in detections. Post decontamination samples may then fail to detect Legionella, and sampling won't be conducted until another detection.
- The regulations promote this rinse and repeat approach, rather than a risk management approach.
- This is an issue as Legionella will not be detected in the immediate post decontamination samples but can be detected again in later samples. Users continue to be exposed.

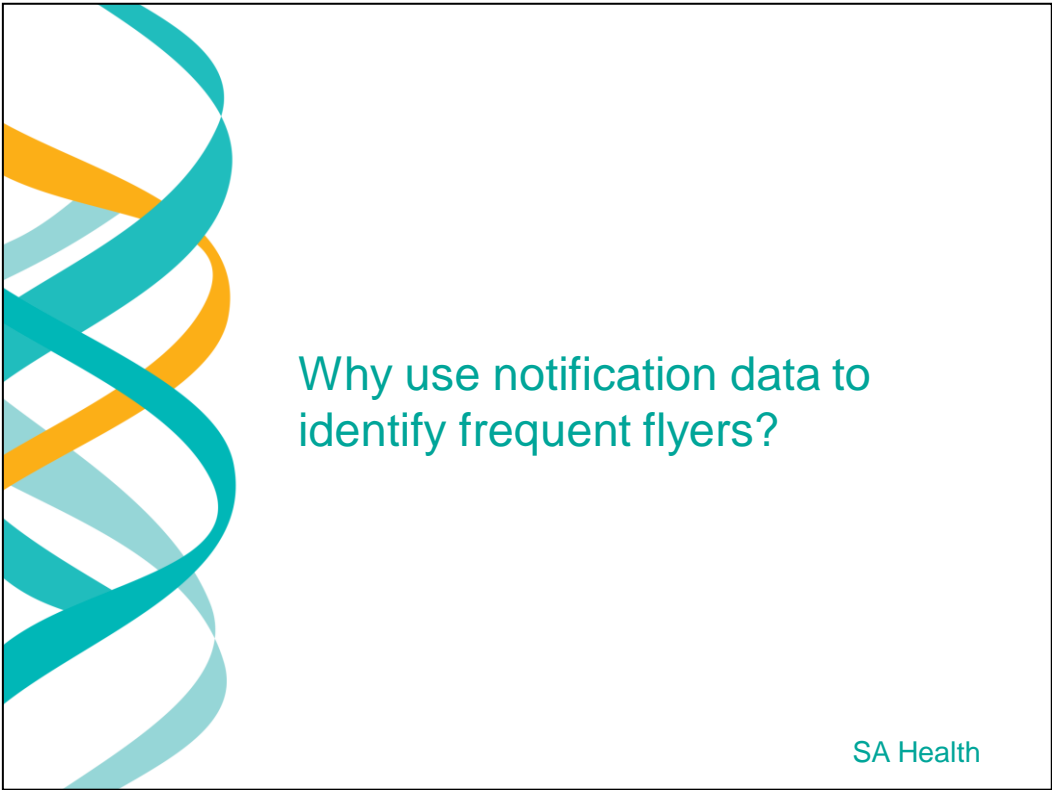
You'll also want to identify **what method of decontamination was undertaken.**

- The method of pasteurization and responsive chlorination (that isn't delivered through a continual residual dose) can reduce colonization of Legionella at outlets but remain ineffective to remove systemic biofilm.
- It's likely that if pasteurisation is used, samples are only taken from warm water outlets.
- Also, if cold water outlets are sampled and Legionella was detected, but pasteurization was the method of decontamination, how did that occur? This


indicates misreporting or lack of understanding.

Are detections from the system widespread or localized?

- to identify if there is a potential issue only in one part of the system OR
- if sampling is not comprehensive enough to identify if there is Legionella growth anywhere else.



Why is this data important?



Risk indicator

> Risk = **Exposure** (hazard) x **Probability** x **Severity**

Water system risk	Health risk
Risk of contamination of water Microbial colonization of facility water infrastructure Subsequent proliferation of Legionella within the water system	Individual susceptibility

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- Identification of frequent flyers is important as it indicates public health risk and can help to further identify potential water system risks.
- Also provides evidence that further investigation is needed to understand the hazards within the water distribution system.


Risk = exposure x probability x severity

- *Legionella* is a complex **hazard especially in** health care facility water systems.
- **Probability and severity** increase with susceptibility. The majority of WWS users are susceptible.

The table shows the hazards/hazardous events within health care facilities.

- grouped into **water system risk** - factors that increase the **likelihood, distribution and severity** of *Legionella* colonisation within a facility's plumbing

- and **health risk** those that increase the likelihood of a susceptible patient becoming infected with *Legionella* bacteria



Roles/responsibilities

- > Owner
 - Duty to register HRMWS
 - Ensure person responsible for the operation and maintenance of the system is sufficiently knowledgeable and competent
 - Respond to detection of Legionella

- > Operators
 - Duty to minimize Legionella related public health risks
 - Ensure all components of their water system(s) are assessed and risks relating to *Legionella* growth are identified.


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Owner of the premises

- registration of the HRMWS with the relevant authority.
- Ensure the operator/person responsible for the system is **sufficiently knowledgeable and competent** to ensure the systems is operated and maintained as required.
- Respond to detection of Legionella – as per schedule 4.

Operators

- Operators have a heightened duty to minimise Legionella related public health risks through the ongoing management of water distribution systems
- operators should ensure all components of their water system(s) are assessed and risks relating to Legionella growth are identified. Should result in sufficient control of Legionella throughout a system.
- These components should be effectively maintained, through the development of an appropriate monitoring and maintenance regime.
- Failure to manage Legionella in a HRMWS constitutes a risk to public health
- an offence under the SA Public Health Act, and under the Regulations.



Roles/responsibilities

- > Local Public Health Authorities
 - Regulate HRMWS using the South Australian Public Health (Legionella) Regulations 2013, and South Australian Public Health Act 2011
 - Maintain register of HRMWS
 - Receive notifications of detections from HRMWS and notify SA Health within 24 hours
 - Conduct annual inspection of HRMWS
 - 2 samples from WWS (minimum)

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Councils / HPO at SA Health

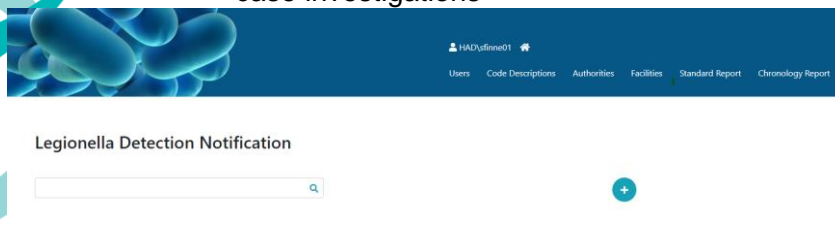
LPHAs regulate HRMWS using two pieces of legislation:

- Legionella regulations
- SA Public health act 2011
- Maintain register of HRMWS
- Receive notifications of detections from HRMWS and then must notify to SA Health within 24 hours
 - Use the notification data to monitor for frequent flyers and respond to those
- Annual inspection including 2 minimum samples from WWS. Doesn't give a great indication for Legionella colonization and **enables the "rinse and repeat approach"**.
- **OR as per regulation 15(2)** issue a notice to the owner to engage an independent inspector to conduct an inspection.

Roles/responsibilities

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- Receive notifications of detections from HRMWS directly from LPHA.
- Record these in LDNA and monitor trends
- Co-ordinate LP1 investigations
- Review notification data with regard to LP1 case investigations




- produces the regulations.
- SA Health receives notifications directly from LPHA
- We record these in our legionella notification application.
 - Follow up questions in response to notifications to ensure the quality of information we are recording in our application.

We will also contact councils when we notice a frequent flyer to discuss it and potential management options.

We also co-ordinate LP1 investigations

- We review notification data as part of our initial steps in an investigation to identify any potential sources of exposure.



Options – Responding to identified frequent flyers

- > Previous notification history – **use your data**
- > Exposed populations – risk factors for illness
 - Smoking
 - Being male
 - Chronic heart or lung disease
 - Diabetes
 - Kidney failure
 - Some forms of cancer
 - >50

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What are your options once you've identified a frequent flyer?

Notification data helps to provide evidence that further investigation is needed

The data you've collated can guide your questions and investigation with the owner/operator for them to consider their risk management of the facility.

- Number of detections, frequency, duration
- Widespread or localized?
- You'll then consider the exposed populations, with regard for the risk factors for Legionella infection.

Options - Responding to identified frequent flyers

> Previous cases of *Legionella* infection

Dear Health Protection Program,
The following information is provided to enable investigation of a notifiable disease, specifically a case report of Legionella infection (pursuant to the South Australian Public Health Act 2012).
The Disease Surveillance & Investigation Section of CDC Branch received a laboratory notification of Legionella infection on DATE.

DEMOGRAPHIC DATA			
Surname	SURNAME	Other names	FIRST SECOND NAMES
Age	AGE		
Sex	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Other	Parent/carer name (if applicable)	
Residential address	Suburb	Postcode	
Telephone			
Case Mosaic		Case Email	
Language spoken at home		Interpreter required?	<input type="checkbox"/> Yes → Language _____ <input type="checkbox"/> No
Occupation (full-time or part-time work, voluntary activities)		Work address	
Provide any additional information that may be important for HPH (SAC) to be aware of prior to visiting user's (SAC), e.g., limited data, privacy access			

> Compliance history

- System plans, records and manuals
- Previous inspection reports
- Independent inspections vs LPHA inspections

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Consider if there have been any **previous cases of Legionella infection** linked to the system.
Were there any identified likely sources of exposures?
Was Legionella detected?


Also consider compliance history

This includes looking at previous inspection reports and looking to assess current compliance (which may require an inspection if there has been a lapse in time since the previous one or if the last inspection was conducted by an independent inspector).

You'll want to look at the quality and compliance of system, as well as plans, records and manuals.

- Is the system maintained as per the regulations?
- Do system plans accurately reflect system configuration and componentry?
 - Do they also show things like zip taps and ice machines?
- Are compliant maintenance and operating manuals for the system kept in a readily accessible place? Can those that need to access these (including you) and know where they are?

- What about records? What records are kept and are they complete?
 - Servicing records for componentry, Temp records, corrective actions/decontamination



Options - Responding to identified frequent flyers

- > Ability of system owner to resolve issues
- > Maintenance programs / monitoring regimes
 - Microbiological sampling regimes
- > Previous system decontamination
- > Local factors
 - Recent system modifications
 - Changes in system ownership/responsible person

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Consider the **ability of system owner to resolve issues:**

Is the system owner able to resolve ongoing issues? Competent operator/infection control nurse or external consultants such as water treatment contractors and plumbers?

Is the system owner aware of their obligations?

How competent is the operator at managing the risks relating to Legionella growth?

Consider any maintenance programs and monitoring regimes for the system(s):

Is there a maintenance program? Is it adequate to maintain all components of the system in good condition?

Monitoring regimes - What is monitored?

If any maintenance programs/monitoring regimes highlight particular issues, are these recorded and are appropriate corrective actions undertaken?

Consider microbiological sampling regimes

- Sampling is important for validation that maintenance programs are effectively controlling Legionella.
- These are important to avoid the rinse/repeat approach. Minimum just to ensure compliance, or more frequent sampling?

Consider previous system decontamination:

- Has previous system decontamination been documented?

How effective was it to reduce colonization? Notification data can help to provide some evidence for this.

Consider any Local factors:

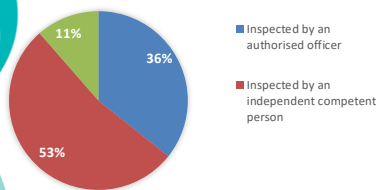
These can include any recent system modifications, changes in system ownership or responsible person, changes in plumbing contractor etc.

- System modifications can stir up biofilm within a system and lead to an increase in detections,
- A change in ownership can also result in disruption to any ongoing maintenance and monitoring regimes

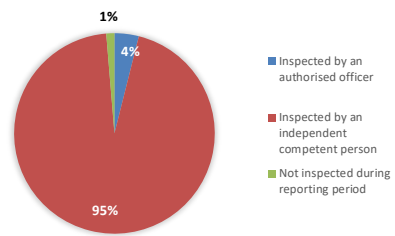
Options - Responding to identified frequent flyers

- > Conducting a full inspection including further water sampling – system analysis

METROPOLITAN WARM WATER SYSTEM INSPECTIONS (N = 70)



REGIONAL WARM WATER SYSTEM INSPECTIONS (N = 153)

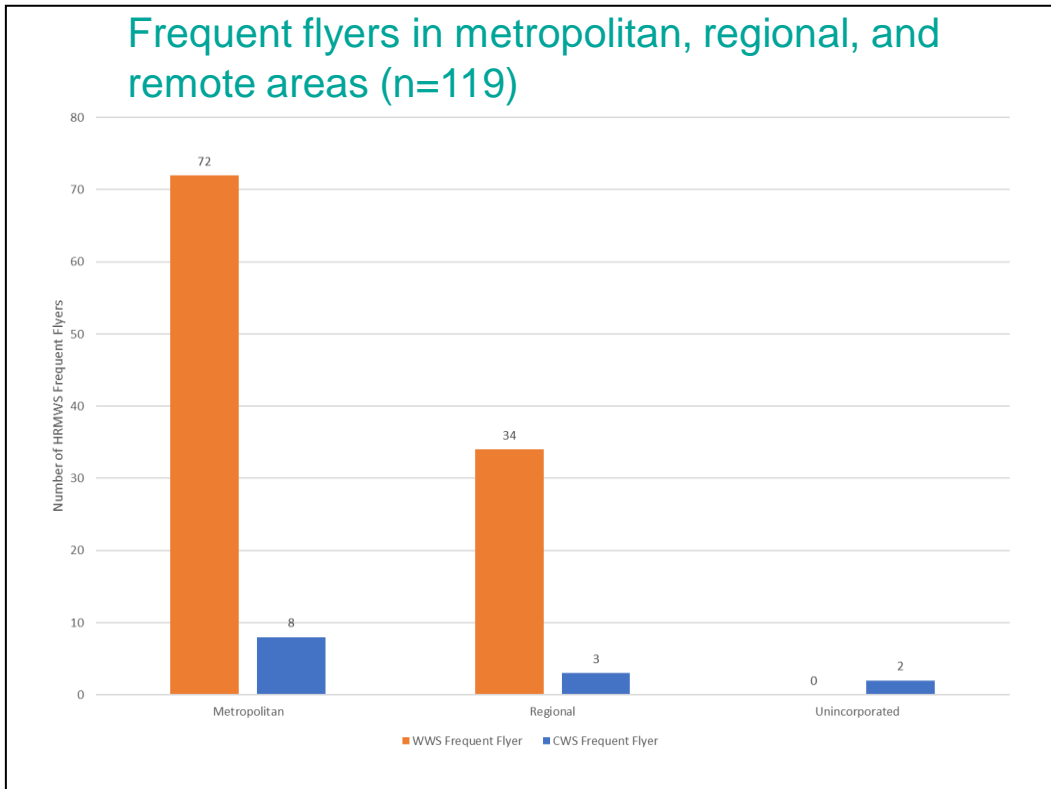


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Consider Conducting a full inspection including further water sampling – system analysis


When you've identified a frequent flyer.

- Also a good idea to consider ongoing inspection frequency if there are many repeated detections.
- During this inspection you can take more than the required two samples to better determine the extent of colonisation of a system
- It's especially important to conduct a full inspection if the system has been inspected by an independent inspector.
- Previous Inspection reports should be thoroughly scrutinised and questions asked of the independent inspector to clarify anything.
 - In preparing for an inspection yourself but also just in receipt of reports each year.
- I've included here some data from the 21-22 annual EH report showing **warm water system inspections** in both metropolitan and regional areas.



This graph again demonstrates the importance of scrutinizing the reports and conducting your own inspections in response to identified frequent flyers.

- shows the number of identified frequent flyers in metro, regional, and unincorporated areas.
- 72 WWS in metro, and 56% of those inspected by independent inspectors. (40)
- 34 WWS frequent flyers in regional areas, with almost 96% of those inspected by independent inspectors (32).
- Equates to 68% of all WWS frequent flyers inspected by frequent flyers.



Management

- > Issuing a section 92 notice
 - To secure compliance with a requirement imposed under a regulation – South Australian Public Health (Legionella) Regulations 2013

But what if the facility is compliant AND a frequent flyer?

- To secure compliance with a requirement imposed under the South Australian Public Health Act 2011 (including duty under Part 6)

Part 6—General duty

56—General duty

(1) A person must take all reasonable steps to prevent or minimise any harm to public health caused by, or likely to be caused by, anything done or omitted to be done by the person.


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Once you've considered a number of factors, as discussed, and conducted your own inspection, where do you go from there?

- If you believe that the risks of Legionella in a WWS are not being appropriately managed, you have the option to issue a s92 notice.
- This could be to secure compliance with the regulations
- **But what if the facility is compliant AND a frequent flyer?**

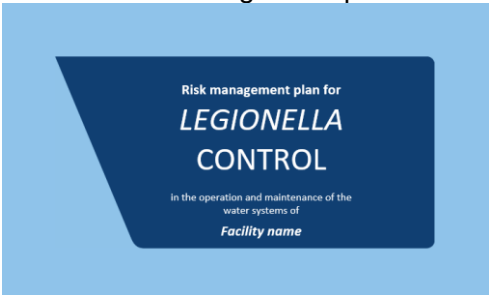
We know systems can be compliant but not manage the risks correctly.


- you can issue a s92 notice to secure compliance with the Act – General duty under Part 6. **[Read 56]**




Management

- > Issuing a section 92 notice
 - Require the development and implementation of a risk management plan



Download the template here 



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92(1)(a) general duty

- If you choose to issue a s92 notice to secure compliance with the Act – General duty under Part 6,

You can do so to encourage a risk-based approach to the management of risks relating to Legionella.

A s92 notice can require development of an RMP, and we encourage councils and system owners/operators to use the enHealth guidelines in health/aged care setting.

- RMP should focus on assessing the system risk and population risk,
- Should involve undertaking a full system analysis, working back from the outlet to the boundary meter, looking at the factors including those listed on previous slides.

This QR code links you directly to the enHealth risk management plan template so you can download it if you aren't familiar with it.



This slide is the last page of the presentation.