The recent outbreak of Legionnaires’ disease in Edinburgh has raised a number of questions about the disease and the role that different organisations have in preventing and responding to public health scenarios of this type. This briefing answers a number of specific questions about the disease. It also sets out the roles and responsibilities of different organisations to deal with public health matters of this nature. The briefing offers specific information on the current situation with regard to the Lothian outbreak.
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Introduction

The Legionella outbreak in Edinburgh in early June 2012 raised a number of questions about the disease and the role that different organisations play in preventing and responding to public health scenarios of this type. This briefing sets out a number of frequently asked questions about the disease and the role played by public authorities in dealing with public health matters of this nature.

At the time of writing, the latest Scottish Government press release reported that there were a total of 37 confirmed cases of Legionnaires Disease linked to the Edinburgh outbreak and a further 45 suspected cases. Of the cases being treated in hospital, 15 were in intensive care and 26 on general wards. A further 16 cases were being treated in the community, 19 had been discharged from hospital and one person had died. Five cases were being treated outside the NHS Lothian area. One patient was being treated in the north of England, two in NHS Tayside, one in NHS Lanarkshire and one patient from NHS Highland was being treated in Glasgow.

What is Legionnaires’ disease?

Legionella is a bacteria found in the natural environment. It can cause two types of illness:

• Legionnaires’ disease, which is a pneumonia (lung infection) and can often be a severe illness.
• Pontiac fever, which is a milder flu-like illness.

Legionnaires’ disease is a potentially fatal lung infection that is caused by the legionella bacteria. The disease, which is not contagious and cannot be spread directly from person to person, is caught by breathing in small droplets of contaminated water. This can include vapour plumes, as is believed to be the mode of infection in the Edinburgh case.

Further information can be found on the British Lung Foundation website.

What are the causes?

Legionella bacteria can be found in the natural environment. It has been found in water sources, such as ponds, rivers and lakes, however problems arise when it contaminates artificial water supply systems, like air conditioning systems, cooling systems or hot and cold water systems in buildings, spa pools or cooling towers.

Large buildings, such as hotels, hospitals, museums and office blocks, are more vulnerable to legionella contamination because they have larger, more complex water supply systems and the bacteria can quickly spread.¹

The most common way to get Legionnaires’ disease or Pontiac Feveris is through inhaling water droplets from a contaminated water system containing the Legionella bacteria. Legionnaires'

¹http://www.aquascotland.com/_blog/Aqua_Scotland_Blog/post/Legionnaire_Risk_Assessment_Are_There_Legionnaires_Disease_Risks_in_My_Building/
disease cannot be caught by drinking tap water. There is, therefore, no need to boil tap water prior to consumption. It cannot spread from person to person.

**What are the symptoms of Legionnaires’ disease?**

Initial symptoms include a high fever and muscle pain. Once the bacteria begin to infect the lungs, sufferers may develop a persistent cough. Other symptoms include headache, shortness of breath, chest pains and sometimes vomiting and diarrhoea. A full list of symptoms and related information about the disease can be found on the **NHS inform website**.

**Who is most at risk of contracting the disease?**

For people who are healthy, the risk is low. However, there are some groups who face increased risk. Legionnaires’ disease is three times more common in men than women, and mostly affects people aged over 50. People whose immune system is suppressed, patients with chronic lung disease and people who smoke are also at higher risk.

**How soon do the symptoms occur?**

The time between exposure to the bacteria and onset of symptoms (the incubation period) is between 2 and 10 days, typically 5-6 days. In rare cases some people may develop symptoms as late as two weeks after exposure.

**How long does it take to diagnose Legionnaires’ disease?**

As the incubation period is typically 5-6 days prior to symptoms showing, there are a number of different ways to diagnosis the disease. For example, diagnosis can be based on symptoms during an outbreak. Urine or PCR testing\(^2\) is a very quick way of testing for the disease. Confirmation of the diagnosis involves testing the legionella culture, which is required to identify the specific strain of the bacteria. This can take between 5 to 10 days.

**How is the disease treated?**

Treatment involves intravenous antibiotics, which a doctor will prescribe.

Health experts say the key to recovering from Legionnaires’ disease is to get treatment with the right antibiotic as soon as possible. In the Edinburgh case the strain of legionella is one of the most common, and, in most cases, it would appear antibiotics have been effective in tackling the disease.

**Who is responsible for investigating outbreaks of Legionnaires’ disease in Scotland?**

Responsibility for investigating localised outbreaks (those that occur within one NHS area) will normally fall to the local NHS public health team. Such investigations will routinely involve the local authority environmental health team and the **Health and Safety Executive** (HSE), as well as **Health Protection Scotland** (HPS).

Guidance was published by the Scottish Government in 2011 on **Management of Public Health Incidents** (Scottish Government, 2011). This includes information on the role of different organisations in responding to public health incidents of this type. A brief summary of some key points is provided below.

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\(^2\) The most commonly used method for initial diagnosis is a urine test or Polymerase Chain Reaction (PCR) test, which is a genetic test that looks for the deoxyribonucleic acid (DNA) that is specific for Legionella.
**The Public Health etc (Scotland) Act 2008**

Scottish Ministers have a duty to protect public health i.e. to protect the community from infectious disease, contamination and any other hazards which constitute a danger to human health. This includes the prevention of, control of, and provision of a public health response to such disease, contamination or other hazards.

Under this legislation, Health Boards and local authorities have a duty to protect public health. The split of responsibilities under the Act between Health Boards and local authorities essentially involves Health Boards being responsible for “people” and local authorities for “premises”. The Act also requires Health Boards and local authorities to co-operate with each other and with the Common Services Agency (which in essence would be: National Service Scotland (NSS); Health Protection Scotland (HPS); and the Scottish Ministers (Scottish Government)).

**National Health Service**

Under the terms of the National Health Service (Scotland) Act 1978, the NHS in Scotland is charged with securing improvement in the physical and mental health of the people of Scotland and securing the prevention, diagnosis and treatment of illness.

Under the terms of the Public Health (Scotland) Act 2008, NHS Boards have a duty to “continue to make provision, or secure that provision is made, for protecting public health in its area, without prejudice to its general duty to promote the improvement of the health of the people of Scotland” and a duty to “co-operate with any relevant person who appears to have an interest in or a function relating to the protection of public health”.

NHS Boards have a range of powers available to them under the Public Health Act that can be exercised by their designated “competent person”. These are listed at paragraph 23 (page 42) of the *Management of Public Health Incidents* (Scottish Government, 2011). Operational responsibility for health protection services lies primarily with NHS Boards. HPS has a role in ensuring a consistent, efficient and effective approach in the delivery of these arrangements. The role of NHS Boards is to focus on operational management of an incident, but the lead role will change where there is an escalation of an incident.

**Health Protection Scotland**

HPS was established in 2005. It is a division of NHS National Services Scotland (NSS). Its aim is to work in partnership with other responsible organisations, to protect the Scottish public from exposure to hazards that could damage their health, and also to limit any impact on health when such exposures cannot be avoided.

HPS has responsibility for facilitating responses to different types of incident. The specific terms of these responsibilities are set out in a *Memorandum of Understanding* between HPS and the Scottish Government. The different types of incident are:

- A localised incident affecting a single NHS Board with no major disruption of services.
- An incident affecting two or more NHS Boards with no major disruption of services.
- A Scotland or UK-wide incident with some but no major disruption of services (e.g. an unusual salmonella)
- Any of the above incidents with major disruption of services requiring the mobilisation of significant surge capacity and the establishment of regional or national multi-agency strategic, tactical and operational management arrangements (e.g. pandemic influenza)
Local Authorities
Under the terms of the Public Health (Scotland) Act 2008, local authorities have a statutory duty to “continue to make provision, or secure that provision is made, for the purpose of protecting public health in its area” and “co-operate with any relevant person who appears to have an interest in or a function relating to the protection of public health”.

Similar to NHS Boards, local authorities also have a duty to designate a sufficient number of persons who can exercise functions under the Act. Under the terms of the Act, local authorities have powers to:

- Pursue public health investigations including powers for investigators to enter premises, ask questions etc.
- Serve a notice on the occupiers of any premises in its area if anything in or on the premises is infected, infested or contaminated.
- To order a range of public health measures including disinfection, de-infestation and decontamination, in order to prevent the spread of infectious disease or contamination.

Environmental Services, or other relevant local authority department, constitutes the prime local authority resource in health protection. It holds the principal local responsibility for reducing the risks from many environmental hazards and liaises with NHS colleagues in the investigation and control of outbreaks of infections, often being the enforcement arm of the teams set up to manage these incidents.

Health and Safety Executive
The HSE is a non-departmental public body that works across Great Britain to regulate workplace health and safety, working in the public interest to reduce work-related death and serious injury. The HSE play a role in investigating public health incidents that result from activities of workplaces. This is part of its remit under the Health and Safety at Work etc Act 1974. It reports findings to the Crown Office and Procurator Fiscal Service.

Health and safety legislation is reserved to the UK Parliament and health and safety matters have not been devolved to the administrations in Scotland and Wales. The HSE have developed working arrangements within each of the devolved administrations to ensure that areas of “common and close interest” are managed appropriately.

Who is responsible for checking that businesses/public bodies are complying with maintenance standards to reduce/eliminate the possibility of Legionnaires’ disease occurring?

Essentially the proprietors of any property that has systems that may produce the legionella bacteria have ultimate responsibility for ensuring they meet Health and Safety legislative requirements. The HSE or the local authority Environmental Service (depending on the type of premises) are responsible for regulation of workplaces as well as enforcement of health and safety matters that arise and have a risk to public health.

The HSE have published an approved code of practice and guidance on the control of legionella bacteria in water systems to prevent Legionnaires’ disease.

Once there is an outbreak, what is the chain of notification?

Once there are two or more cases of Legionnaires’ disease within a geographical area, a problem assessment group will normally be established by the NHS Board to determine whether there is any link. Once any link or possible link is established, the NHS Board will then establish an Incident Management Group (IMG) meeting to manage and investigate any incident. NHS
Boards will notify the Scottish Government (via the Chief Medical Officer’s team) of any concerning public health incidents and at that point Ministers will be alerted. The Scottish Government will then monitor any incident, providing support or advice as necessary, and will proactively get involved if there is a need to do so.

Are there time limits for notification?

There are no specific time limits for notifications as the nature of outbreaks and incidents can vary widely, but the Scottish Government would expect to be notified as soon as any public health incident of significance is identified.

Is it a requirement that GPs are notified once there is an outbreak?

The normal procedure in the case of outbreaks or incidents is to ensure that GPs proactively pick up potential cases. In this circumstance, GPs should use a low threshold to identify potential cases, to ensure that even those with milder symptoms are picked up / treated.

What factors are linking the Edinburgh cases?

The BBC produced a set of questions on the factors linking the Edinburgh cases. They note that the majority of the confirmed cases are linked geographically to the Dalry, Gorgie and Saughton areas of Edinburgh.

NHS Lothian stated that investigations into the other cases and possible links with the area were continuing, but estimated the potential infection area was about 44 square miles, in a densely populated area of Lothian.

Sixteen water cooling towers in the south-west of Edinburgh have been treated with a range of chemicals to kill any bacteria. The towers were identified as a potential source of the outbreak following the first reported cases on Sunday and were chemically treated on Sunday night and Monday morning.

Health Protection Scotland state that this outbreak is typical of the pattern for outdoor outbreaks of Legionnaires’ disease, which is why the cooling towers are thought to be the source of the outbreak. The weather will also have affected how widely it has travelled.

What will happen next?

The incubation period for Legionnaires’ disease can be between two and fourteen days, with the average five or six days. This means that the disease was estimated to peak in the week following its initial identification. How it develops in the first week or two is the key to determining its scale.

The Scottish Government has held meetings of its Resilience Committee to co-ordinate support to the Incident Management Team’s (IMT) role in managing and responding to the outbreak.

What notification has been sent to GPs about this outbreak?

NHS Lothian have circulated daily updates to GP practices and other clinical areas across the Health Board area.

What public information has been provided about this outbreak?

NHS Lothian has issued press releases on a daily basis since the outbreak was reported on 3 June 2012. The press releases can be accessed via this link. The Cabinet Secretary for Health,

A dedicated public information line has been set up by NHS 24 to deal with questions about Legionnaires’ disease. NHS Lothian also sent out a mail shot to all premises in the area that may have been affected.

References


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