Something lurking in the potting shed – a novel source of Legionnaires’ disease

Since 2008, a small but increasing number of cases of Legionnaires’ disease caused by Legionella longbeachae have been identified in Scotland. L. longbeachae is an unusual form of Legionella bacteria found in soil, composted material and potting compost. It has not been identified in water supplies and cooling towers. This increase has not been mirrored across the rest of the United Kingdom (UK) and Europe.

Aim
To describe an emerging pathogen in Scotland and collate surveillance data which can be used to inform public health messages.

Methodology
Health Protection Scotland (HPS) routinely collects information about cases of Legionnaires’ disease, in order to quickly identify outbreaks and enact control measures that will prevent more people becoming infected.

Legionnaires’ disease is an unusual form of pneumonia that is caused by infection with Legionella bacteria. Most Legionella bacteria live in water and people can become infected if water sources that produce an aerosol (such as cooling towers or showers) become contaminated. In order to become infected, the contaminated aerosol must be inhaled. Most cases of Legionnaires’ disease are caused by infection with Legionella pneumophila.

HPS has analysed routinely collected surveillance data about cases of Legionnaires’ disease to understand an unusual strain of Legionella which is causing illness in Scotland. This strain is Legionella longbeachae (named after Long Beach, California where it was first identified).

In Australia and New Zealand around half of all cases of Legionnaires’ disease are caused by L. longbeachae infection. L. longbeachae is connected with potting compost and composted green waste and not with water sources.

HPS has worked with the Scottish Legionella Reference Laboratory (SHLMPRL) and public health staff across Scotland to raise awareness of this infection amongst clinical and scientific staff in the NHS and with the public.

Results

Case characteristics
Since 2008, 19 cases of Legionnaires’ disease caused by L. longbeachae have been reported to HPA, which accounts for 7% of all cases of Legionnaires’ disease in Scotland during this time. The case fatality rate is 10% among cases. All these cases were in Scottish residents who were exposed to L. longbeachae in Scotland.

Cases tend to be older (average age 67 years) and males tend to be affected more than females (a 2:1 ratio). Two thirds are smokers or ex-smokers; and two thirds have significant underlying illness.

The majority of cases are keen amateur gardeners. In half of the cases, the same strain of Legionella that infected the case was isolated from the potting compost that they had been using during their incubation period.

Identification of cases
Legionnaires’ disease presents as pneumonia, so all cases must undergo testing to identify that they have Legionella infection.

Testing to identify L. longbeachae can be tricky as the usual test (Legionella urinary antigen testing) for identification of Legionnaires’ disease is negative and other tests must be requested by the clinicians and scientists managing the case.

Cases of L. longbeachae infection can be identified by sputum samples taken for culture and PCR, and by changes in antibody level to L. longbeachae in the blood. These tests may not be routinely requested.

Sources of L. longbeachae
Shop-bought potting compost and other soils, mulches and compost appear to be the main source of L. longbeachae infection. However, for the cases where this was investigated, there was no common retailer, brand or manufacturer.

Investigation of manufacturing processes for potting compost indicates that products available in Scotland are manufactured in Scotland, England, Northern Ireland and Ireland and also available in these countries. Cases are not being identified in these countries, but this can be explained by these countries not performing the clinical tests needed to identify this infection.

Raising awareness
HPS has been working with colleagues in the NHS to raise awareness about L. longbeachae infections. Scientists within microbiology laboratories now know about testing regimes and will request that clinical staff send the appropriate samples.

HPS has undertaken a review of cases in the period 2008-12 to better understand issues of case ascertainment. A report about this investigation is available on the HPS website.

HPS has undertaken in to increase public awareness. The media has been interested in this emerging pathogen and reports on it regularly. HPS issued a public health press release in May 2014 to raise awareness with the public and gives media interviews during incidents.

Conclusion

HPS has identified an emerging pathogen in Scotland and is leading the rest of the UK and Europe in identifying and characterising cases of Legionnaires’ disease caused by this pathogen.

The risk of becoming unwell from gardening activities, such as working with potting compost, remains very low. However, HPS continues to recommend good hygiene in relation to gardening – wearing gloves, wearing a mask if dusty particularly indoors, and washing hands immediately after use.

Gardeners should consider storing compost, potting mixes, mulches and soil in a cool place away from the sun. It is also advised that people should open any compost or potting mix bags carefully in a well ventilated area, ideally outdoors, and if possible using a safety blade or sharp knife. Finally, the door should be kept open in greenhouses or sheds when potting plants or filling hanging baskets and if gardeners are going to eat, drink or smoke while gardening, it is best practice to wash hands before doing so.