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Direct molecular typing to rapidly investigate cases and clusters of Legionnaires' disease in England and Wales

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Legionella pneumophila is the leading cause of Legionnaires' disease (LD), a severe pneumonia that can occur as sporadic cases or point-source outbreaks affecting multiple patients. The infection is acquired by inhalation of aerosols from contaminated water systems. In order to identify the probable source and prevent further cases, clinical and environmental isolates are compared using phenotypic and genotypic methods. Typically up to 10 days are required to isolate *L. pneumophila* prior to the application of standard typing protocols. A rapid protocol using a real-time PCR specific for *L. pneumophila* and serogroup 1 combined with nested direct sequence based typing was adopted by Public Health England in 2012 to reduce reporting time for preliminary typing results. This rapid protocol was first used to investigate an outbreak that occurred in July/August 2012 and due to the positive feedback from that investigation, it was subsequently applied to other incidents in England and Wales where faster typing results would have aided incident investigation. We present here results from seven incidents that occurred between July 2012 and June 2015 where preliminary characterization of the infecting strain was possible in 1.58 days (SD 1.01) after sample receipt in contrast to 9.53 days (SD 3.73) when standard protocols were applied.

Biography

Victoria Chalker has completed her PhD at Nottingham University and Post-doctoral studies at the Royal Veterinary College. She is currently Head of the Respiratory and Systemic Bacteria Section, Bacterial Reference Department, Public Health England with remit for Legionella, non-vaccine preventable Streptococci, Leptospira and molecules. She has published more than 40 papers in reputed journals and has been serves as a reviewer for several journals. She currently has 4 patents from her research.

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