Legionnaire's disease cases by the National Reference Centre: a ten-year retrospective

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Introduction

The number of cases of Legionnaires' disease (LD) increased over the years according to the report of European centre for disease prevention and control (ECDC).

An update on the characteristics of number of cases, species involved, diagnostic methods used but also the settings of infections, geographical distribution and epidemics that appeared, is resumed here for practical information.

Material and methods

The National Reference Centre (NRC) for *Legionella pneumophila (Lp)* in Belgium receives requests from external laboratories on voluntary basis for culture and PCR diagnosis. It receives also isolates for typing from patients and environmental investigations.

The data of infections by *Legionella* species collected within the last decade (2011-2020) were retrospectively gathered and analysed. The cases were defined as "confirmed" when the urinary antigen test for Lp SG-1 (UAT) and/or the culture were positive whereas a PCR positive result alone were classified as "probable".

Results

454 infections data were gathered within the last decade 2011-2020.

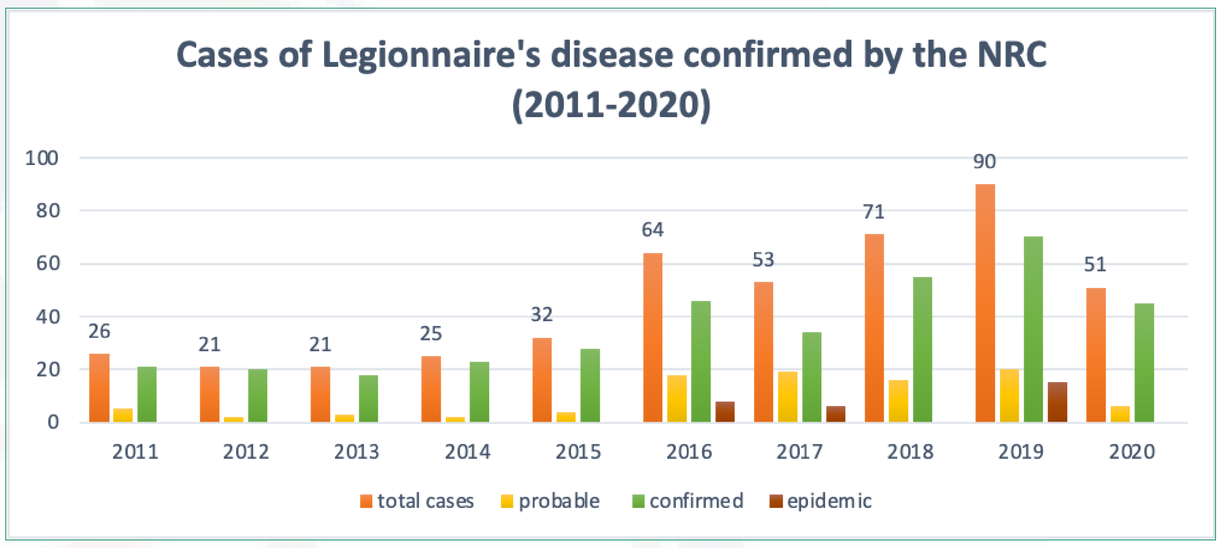
*L*p was responsible of 439 (96.7%) of them. 360 (82.0%) were *Lp* serogroup 1 (SG-1). The other Legionella species represented 15 (3.3%) cases, including 9 unidentified, 4 *Legionella bozemanii*, 1 *Legionella wadsworthii* and 1 *Legionella longbeachae*.

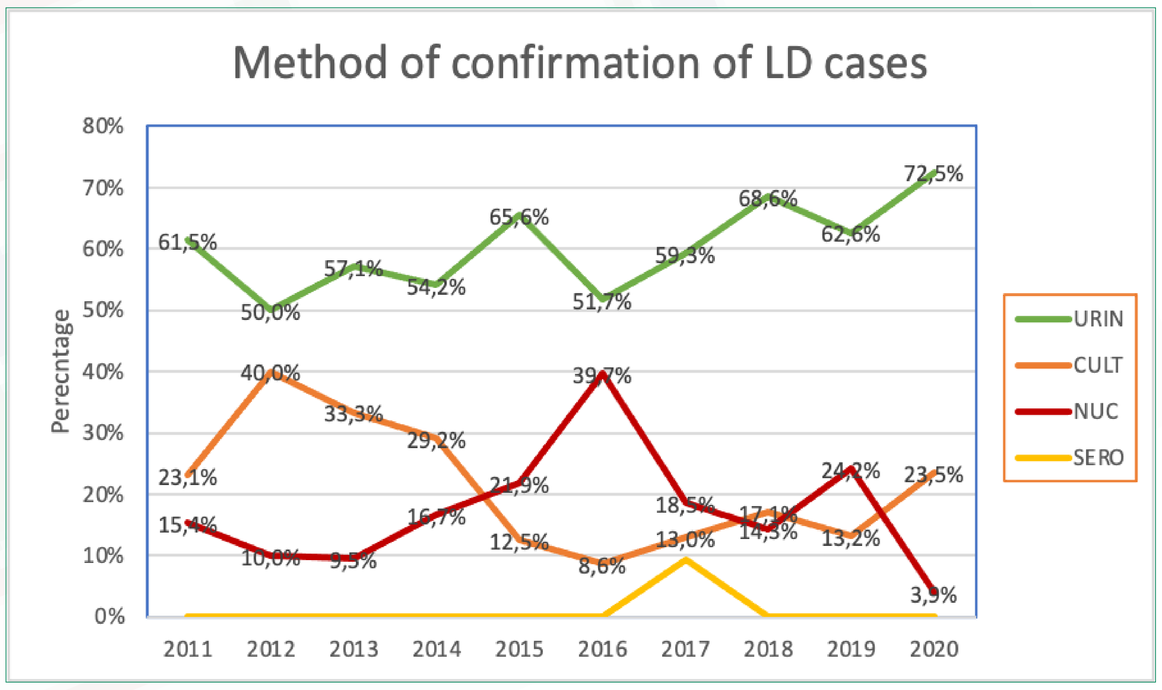
278 cases (61.3%) were diagnosed by UAT. 160 (57.7%) of these cases were also confirmed by culture. 84 (18.6%) cases were culture-positive only. 120 (26.4%) were UAT-positive only. 86 (19%) remained probable with a positive PCR only.

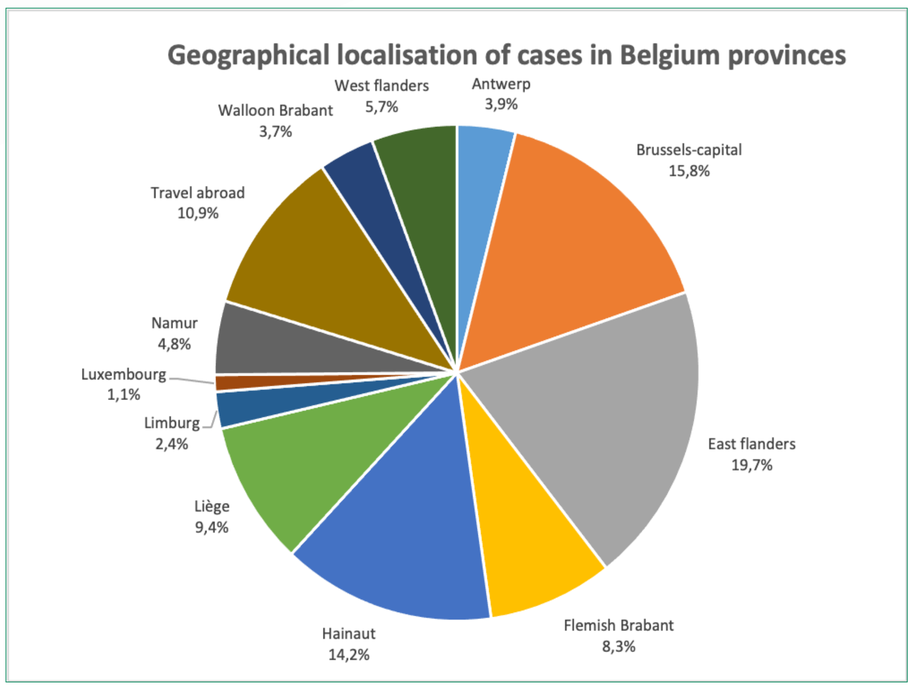
186 (41.0%) infections were acquired in the community, 45 (9.9%) were nosocomial and 45 (9.9%) were travel related. Only 5 (1.1%) were healthcare-related and 5 (1.1%) domestic travel-related. The source was undocumented in 168 (37.0%) cases because the information was lacking on the NRC forms. East Flanders, Brussels Capital Region and Hainaut gathered the majority of the reported cases. Limburg, Namur, West Flanders, Walloon Brabant and Antwerp gathered less cases.

Three epidemics were investigated during the observed period. In 2016 in Dendermonde with 17 cases (ST48). In 2017 in a potato factory in Nieuwkerke, 127 cases were associated but no ST was documented. In 2019, in a paper factory near Ghent, 32 cases were observed, associated with a cooling tower (ST921).

Only 53.8% of the nosocomial and healthcare-associated cases were followed by an environmental investigation. A matching isolate was found in 71.4% of these investigations. In 38.5% of the total infections, there was no information about the possible source of infection.







Discussion/Perspectives

The observed difference between the provinces is probably due to differences in the habits of the laboratories, some might not systematically send neither samples, nor isolates to the NRC. The mortality rate cannot be evaluated as the information is often not known when the samples reach the laboratory.

The constant increase of LD cases might become a threat in the coming decade so the collection of data from the NRC forms should be more respected by sending laboratories to enable a good following of epidemiological data and environmental investigations.