

# Overview of National Framework for Surveillance and Management of Legionella Infections in Czech Republic

Expert meeting of Legionella control and prevention,  
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# National surveillance framework of Legionella infections in Czech Republic

- **Surveillance** in charge of public health officers and National Legionella reference laboratory
- Under the Public Health Protection Act and Decrees of the Ministry of Health
- **National regulations / decrees** (for drinking and hot water, for swimming pools and saunas, surveillance system for selected infections), in line with European legislation
- **Methodical recommendations** of the Ministry of Health
- **National Institute of Public Health** - to ensure the national surveillance program for Legionella infections

# Surveillance and management of Legionella infections - approaches

(national regulations/degrees)

- **Decree** (70/2018 Coll., as amended), laying down hygienic requirements for **drinking** and **hot** water  
*(Risk assessment (legionella) will be included in the amendment of the decree, pursuant to the new European Drinking water directive)*
- **Decree** (238/2011 Coll., as amended), laying down hygienic requirements for swimming pools and saunas  
*(applies to swimming pools, spa pools, natural spas, hydrotherapy pools/spas)*
- **Decree** (473/2008 Coll.) on the system of epidemiological **surveillance** for selected infections  
*(Annex 12 regulates Legionella infections)*

# CONCLUSIONS – LEGISLATION PART

- Czech Legionella legislation comprises hotels and hospitals
- Dwelling houses and complexes not included
- Also industrial waters ( cooling towers, glass and plastic industry ) not covered
- Commercial garden mixes and composts – 6 cases of *L.longbeachae*  
Health warning labels on plastic bags still not accepted by legislators
- Technical remedial measures used where applicable
- Disinfection of water systems with ClO<sub>2</sub> – a preferred method

## Legionella spp. monitoring scheme – hot water, swimming, spa and hydrotherapy pools

The limits are based on the latest draft of the European Drinking Water Directive and are compatible with the recommendations of the EWGLI, 2017

Type of water	limit	Limit type	risk points, risk people, risk factors (temperature, aerosol)	monitoring frequency
Hot water (+ showers ) in the swimming pools; drinking water for hot water production)	<b>100</b> CFU/100 ml	limit value	medical and accommodation facilities, showers (in swimming pools)	no
Hot water (+ showers)	<b>100</b> CFU/100 ml	recommended value	other objects (apartment building )	no
Hot water (+ showers)	<b>0</b> CFU/ 100 ml	maximal limit value	<b>hospitals</b> with wards immunocompromised patients, hydrotherapy pool showers	no
Swimming/spa /natural spa/hydrotherapy pools/hydroth. spas	<b>10</b> CFU/100 ml <b>100</b> CFU/100 ml	Limit value maximal limit value	inflow and pool <b>with aerosol</b> inflow and pool <b>with aerosol</b>	1x Quartal -at< 28°C 1x month - at > 28°C 1x 14 days - pool with aerosol
hydrotherapy pool/ hydroth. spas	<b>0</b> CFU/100 ml		inflow and showers, pool water see above	

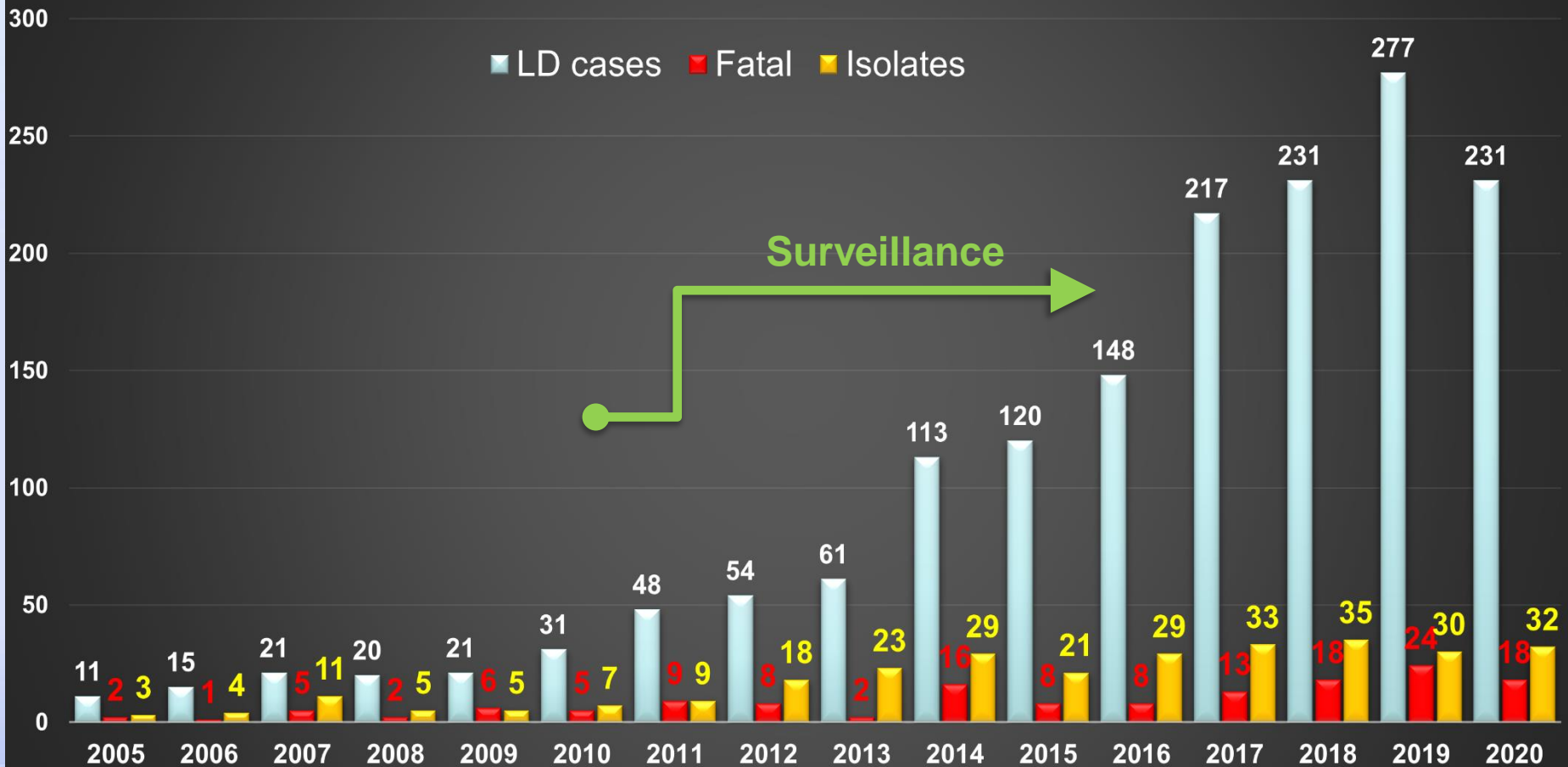


## CURRENT CZECH APPROACH TO LEGIONELLA INFECTIONS :

- Notifiable disease to ISIN and ELDSNET
- All LD cases investigated (where possible)
- Respiratory secretions requested (culture, PCR )
- Urinary AG test - method of choice (BINAX ELISA preferred)
- PCR, nested PCR, MAb typing and SBT- available
- Clinical isolates - typed for epidemiological purposes.
- Environmental isolates epidemiologically related – also typed



## SURVEY OF LEGIONELLA CASES IN 2005-2020



**Mortality : 6-14 %**

**Men – Women : 2,9 : 1**



## SURVEY OF CZECH CLINICAL ISOLATES IN 2000-2021

<b>Overall number of clinical isolates:</b>	<b>280</b>	
<i>L. pneumophila</i>	269	<b>96%</b>
<i>L. species</i>	12	4%
( <i>L.micdadei, bozemanii, maceachernii, longbeachae</i> )		
<b><i>L. pneumophila</i></b>	<b>269</b>	
<i>L. pneumophila</i> sg.1	213	79 %
<i>L. pneumophila</i> sg.2-15	57	21 %
<b><i>L. pneumophila</i> sg.1, MAb 3/1 +</b>	<b>187</b>	<b>92 % ( subg. Pontiac )</b>
<b>For a comparison : in routine water samples</b>	<b>6-10 %</b>	





## GENOMIC TYPING OF L. PNEUMOPHILA CLINICAL STRAINS

- ❑ Outbreak subtypes :
  - L.pneumophila sg.3, ST 93
  - L.pneumophila sg.1, ST 9
  - L.pneumophila sg.1, ST 641
- ❑ Cluster subtypes :
  - L.pneumophila sg.1, ST 1, MAb Philadelphia
  - L.pneumophila sg.1, ST 20, 23, 62
  - L.pneumophila sg.1, ST 1090
  - L.pneumophila sg.1, ST 42, 182

**The most frequently isolated clinical strain - L.p.sg.1, ST 62 ( 27-45 % )**

**MAb subtype - Knoxville**



## **CONCLUSIONS**

- **The Czech surveillance data provides credible results for public health officers**
- **LD cases are still under-reported ( LD testing not used in some hospitals )**
- **Annual counts range between 230-280 cases / year**
- **Mortality moves within 6-14 %**
- **Risk assessment and prevention based on the occurrence of highly virulent STs**
- **Both hospitals and hotels are checked on Legionella**
- **Where remedial technical measures insufficient, disinfection generators installed**



## Legionella 2021



## Legionella 2022



THANK YOU FOR ATTENTION