



Microorganism

- A bacterium, Legionella pneumophila , an intracellular Gram-negative bacillus. Sixteen serogroups have been identified, with serogroup 1 accounting for over 85% of cases
- Other Legionella species such as L. longbeachae, L. micdadei, L. anisa, and L. dumofii, may cause infections, mainly in immunocompromised individuals.
- Legionella colonizes aquatic environments, including domestic hot water systems, cooling towers, and recreational water facilities (e.g., spas, jacuzzis). Optimal growth occurs between 25°C and 45°C, with reduced growth between 45°C and 60°C. The bacteria do not survive temperatures above 60°C.
- Laboratory culture requires a specific medium: BCYE (buffered charcoal yeast extract)

Contamination

- Transmission occurs through the inhalation of contaminated water aerosols
- There is no human-to-human transmission

Contributing factors

	• Homotologia malignancias or concor
• Age > 65 years	 Hematologic malignancies or cancer
Smoking	 Corticosteroid therapy and other
Chronic respiratory diseases	immunosuppressants
• Diabetes	 Other causes of immunosuppression

Incubation

• The incubation period is typically 2 to 10 days, but may extend up to 21 days

Clinical manifestations

 Legionella can cause two types of infection: Legionnaires' disease and Pontiac fever. Both presentations are nonspecific.

Legionaires' disease	Clinical features	 Progressive onset pneumonia Frequent extrapulmonary manifestations: Neurological: confusion Renal: acute kidney injury Gastrointestinal: diarrhea Myalgia Travel history, aerosol exposure, and failure of empiric β-lactam therapy may suggest legionellosis
	Imaging	 Multifocal alveolar consolidations, often bilateral, rarely cavitary, and may be accompanied by pleural effusion
	Biology	 Nonspecific abnormalities may suggest legionellosis: Hyponatremia Elevated liver enzymes Elevated creatine phosphokinase (CPK) Elevated creatinine

1/3





Diagnosis

Diagnostic methods

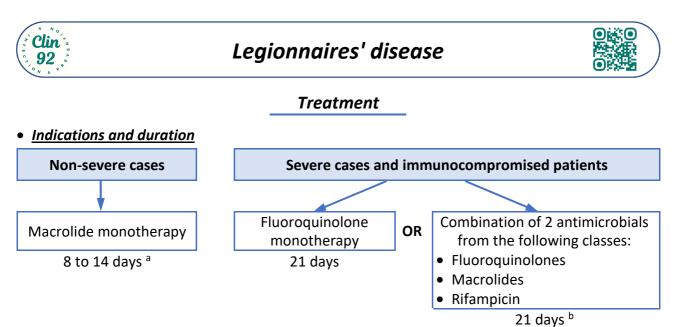
	Benefits	Boundaries
	• Rapid	 Detects serogroup 1 only
Urinary	Noninvasive	 Prolonged antigen excretion (up
antigen test	 High sensitivity for serogroup 1 (> PCR) 	to 6 months)
	 Unaffected by antibiotic therapy 	
PCR	 Detects <i>L. peumophila</i> serogroups and other <i>Legionella</i> species High sensitivity Unaffected by antibiotic therapy Depending on the technique, simultaneous detection of other microorganisms is possible Useful for outbreak investigation 	 Requires invasive respiratory sampling May take several hours, depending on the techniques
Culture	 Allows bacterial isolation for Antibiotic susceptibility testing Epidemiological analysis Detects all Lp serogroups and all Legionella species 	Time-consumingLow sensitivity
Serology	 Useful for epidemiological surveys and retrospective diagnosis 	 Requires two samples taken 4 weeks apart

• **Diagnostic Strategy**

- First-line tests: Urinary antigen test or PCR

 \rightarrow PCR may be preferred in severe cases (in intensive care) or immunocompromised patients.

- If legionellosis is strongly suspected and the initial test is negative, the other method should be performed.
- In cases of positive urinary antigen or PCR, the following should be systematically performed: • Culture of a respiratory sample
 - Submission of the sample and/or bacterial strain to the National reference Center (CNR)
- Legionnaires' disease is notifiable.



^a Except azithromycin: 5 days; ^b Except azithromycin: 10 days

• Molecules and dosages

Classes	Molecules	Dosages	Per Os	IV
	Azithromycin	500 mg once daily	Х	
and ds	Clarithromycin	500 mg twice daily	Х	
es an ed unds	Roxithromycin	150 mg twice daily	Х	
at lid	Josamycin	1 g twice daily	Х	
acro rel com	Spiramycin	3 million IU three times daily ^a	Х	Х
č a	Erythromycin ^b	1 g three times daily	Х	
		1 g three to four times daily		Х
s ui	Levofloxacin	500 mg once or twice daily	Х	X c
oq	Ofloxacin	200 to 400 mg twice daily d	Х	X c
Fluoroqui nolones	Ciprofloxacin	500 mg to 750 mg twice daily	Х	
Ξ -		400 mg two to three times daily		X c
Rifampicin		20 to 30 mg/kg/day in 2 doses	Х	Х

^a Oral spiramycin can be administered in 2 doses per day

^b Primarily, if other macrolides are unavailable, notably spiramycin for intravenous use

^c Equivalent oral and IV bioavailability

^d Oral or IV ofloxacin can be administered in 2 doses per day

Follow up

- Follow-up is based on clinical improvement in all cases
- In severe cases requiring intensive care, iterative PCR on respiratory samples may be considered