

Pneumocystis jirovecii Qualitative Real-time PCR



Pneumocystis pneumonia is an opportunistic infection caused by the globally-distributed fungus *Pneumocystis jirovecii* (previously *Pneumocystis carinii*) that can take months to clear from the body. Pneumocystis pneumonia (PcP, PjP) appeared in the 1980s in HIV/AIDS patients with symptoms of fever, cough, difficulty breathing, chest pain, chills, and fatigue, with fatality primarily due to hypoxia. Spread person-to-person via air transmission, ≥75% of children are seropositive by age 4, and 20% of the general population is colonized with *P. jirovecii*. According to the CDC, 60% of people with PjP are immunocompromised or immunosuppressed, and 40% of cases are HIV-positive individuals. Pneumocystis pneumonia also has a higher incidence in patients taking medications for autoimmune diseases. Additionally, PjP has been associated with Sudden Infant Death Syndrome and worse outcomes in individuals also infected by Cytomegalovirus. There is no vaccine against *P. jirovecii*, but trimethoprim/sulfamethoxazole can be used for prophylaxis or treatment of PjP. The prevalence of infection is likely greater than suspected/diagnosed, especially in transplant recipients, because the organism is not able to be cultured and fungal burden is usually low. Real-time PCR provides a rapid and sensitive method to determine the presence of target-specific amplifiable nucleic acids in all samples intended for PCR¹⁻⁴. For more information, call the lab at 513-636-9820.

Reporting Units:

Positive/Negative

Unacceptable Specimens:

- Frozen whole blood
- Swabs in gel or charcoal media

Sample Type	Volume Needed	Collection Container
Aspirate: endotracheal tube, tracheal	1mL	Sterile Container
Bronchoalveolar lavage (BAL) fluid	1mL	Sterile Container
Body Fluids (i.e. pericardial, pleural)	1mL	Sterile Container
Swab*: nasal, nasopharyngeal, throat	n/a	Red or Green Culturette Swab
Fresh tissue (preferred)**	0.3g	Sterile Container
FFPE tissue	Block (preferred)	n/a
	Scrolls (3x10um)	Sterile Container
	Slides (6 unstained, 5um sections)	n/a

* Red or green top culturette swabs preferred; viral transport media acceptable.
 ** Wrap respiratory tract tissue in gauze wetted slightly with sterile saline to keep moist during transport.

Shipping Conditions:

- Ambient if sent within 24 hours or FFPE tissue
- On cold packs if sent >24 hours after collection

Testing Schedule:

Testing for *Pneumocystis jirovecii* is performed Mon-Fri on first shift. For testing outside of this schedule, call the lab at 513-636-9820. **TAT:** 1-3 days

CPT Codes:

87798

Contact Information:

Cincinnati Children's Division of Pathology
 Molecular and Genomic Pathology Services (MGPS)

Phone: 513-636-9820

Fax: 513-517-7099

Email: pathology@cchmc.org

Website: cincinnatichildrens.org/pathology

For pricing or billing questions, call 513-636-4261.

Shipping Address:

Cincinnati Children's Hospital Medical Center
 Attn: Molecular and Genomic Pathology Services (MGPS)
 240 Albert Sabin Way, R2.001
 Cincinnati, OH 45229

References:

1. "Pneumocystis pneumonia". <https://www.cdc.gov/fungal/diseases/pneumocystis-pneumonia/>. Centers for Disease Control and Prevention. 1600 Clifton Road Atlanta, GA 30329-4027. Last revised April 26, 2017.
2. Monroy-Vaca E, Armas Y, Illnait-Zaragozí M, et al. Prevalence and genotype distribution of *Pneumocystis jirovecii* in Cuban infants and toddlers with whooping cough. *J Clin Microbiol.* 52:45-51. 2014.
3. Yu Q, Jia P, Zhao H, et al. Outcomes and prognostic factors of non-HIV patients with *Pneumocystis jirovecii* pneumonia and pulmonary CMV co-infection: a retrospective cohort study. *BMC Infect Dis.* 17:392. 2017.
4. Gigliotti F and Wright T. *Pneumocystis*: where does it live? *PLoS Pathog.* 8:e1003025. 2012

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Pneumocystis:

<https://www.testmenu.com/cincinnatichildrens/Tests/1151281>