

Blastomycosis

Blastomyces dermatitidis is a dimorphic fungus that causes Blastomycosis disease. The fungus is more common in Northwestern Ontario and Manitoba, along the Great Lakes and St. Lawrence Seaway, and in parts of the U.S., and rare in other areas. Illness ranges from subclinical infection to acute or chronic pneumonia.

- Approx. 50% of those exposed will be asymptomatic; 3 weeks to 3 months after exposure, approx. 50% will develop lung involvement with clinical presentation of non-specific flu-like symptoms such as fever, cough, night sweats, myalgia, arthralgia, anorexia, chest pain, fatigue†
- Acute illness can progress to acute respiratory distress syndrome†
- Approx. 25-40% of symptomatic cases will develop extrapulmonary manifestations such as cutaneous, osteoarticular, genitourinary or CNS disease†
- Blastomycosis is typically acquired by inhalation of airborne spores. Primary cutaneous blastomycosis is uncommon but can result from traumatic puncture of the skin. Blastomycosis is NOT transmitted from person to person.

Local Epidemiology:

- Incidence generally peaks during October through December, however it can occur throughout the year
- Between 2010 and 2015 in the NWHU catchment area, there were zero to 6 cases per month
- Males generally have a higher incidence rate than females particularly for the 30-39 age range
- There are higher incidence rates in Kenora and surrounding communities compared to the rest of the region.
- There are generally higher incidence rates on some First Nation reserves particularly those surrounding Kenora.

Risk Factors¹

- Immunosuppression for any reason including medication or disease
- Collagen vascular disease
- Doing outdoor work or outdoor activities that disturb soil.

Treatment:

Infectious disease specialists in Manitoba, and pathologists and radiologists in Kenora have experience diagnosing and treating blastomycosis. Consulting experienced practitioners on testing and treatment is recommended.

Guidelines can be found at

http://www.idsociety.org/uploadedFiles/IDSA/Guidelines-Patient_Care/PDF_Library/Blastomycosis.pdf



Northwestern
Health Unit

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Clinical Features†

System	Symptom pattern	Could be mistaken for	Testing/ diagnosis
Respiratory	Acute flu-like illness: <ul style="list-style-type: none"> Fever, chills, headache, non-productive cough, pleuritic chest pain, arthralgia/ myalgia May spontaneously resolve 	URTI, influenza	Bronchial washings, sputum or bronchoalveolar lavage for fungal culture. Chest x-ray or CT (note: these results may look like other illnesses)
	Acute pneumonia-like illness: <ul style="list-style-type: none"> High fever, chills, productive cough with yellow-brown sputum, chest pain 	Bacterial pneumonia	
	Chronic symptoms: <ul style="list-style-type: none"> Low grade fever, productive cough, night sweats, weight loss Yellow-brown sputum, hemoptysis 	TB, lung cancer	
	Fast, progressive, severe symptoms: <ul style="list-style-type: none"> High fever, shortness of breath, tachypnea 	ARDS of other origin	
Cutaneous	Skin lesions: <ul style="list-style-type: none"> May be verrucous or ulcerative Begin as papules, pustules, or nodules Form crusty sores over weeks to months 	Basal cell or squamous cell carcinoma, pyoderma gangrenosum, keratocanthoma	Pus aspirate (not swab) or biopsy material (biopsy preferred) for Fungus culture.
Other	Osteomyelitis, soft tissue abscesses, chronic draining sinuses, prostatitis, epididymoorchitis, CNS- brain abscesses, cranial or spinal epidural abscesses, meningitis.	Carcinomas, purulent viral or bacterial infections, viral or bacterial meningitis	

Testing Details:

Depending on the site of infection, specimen collection and handling differs; further information can be found here: <http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/Index.aspx?letter=F>

Common sites include respiratory and subcutaneous, summarized here:

Site	Specimen	Requisition: Fungal testing
Cutaneous	Biopsy in a sterile container with a small amount of sterile saline to prevent drying, room temperature, ship ASAP. Or Pus aspirate, minimum of 2 mls, sterile container, store at 4 celsius, ship ASAP. Biopsy preferred. Swab is discouraged.	In Section 3 ("Test") indicate - Fungus culture
Respiratory	Bronchial washings or alveolar lavage or sputum, sterile container; store at 4° C, ship ASAP. Lung biopsy tissues in a sterile screw cup container with a small amount of sterile saline to prevent drying.	As above

Serology is not a recommended test.

Considerations for all lab requisitions:

- Include clinical data
- Indicate whether the person is immunocompromised and thus at high risk for invasive infection
- If testing for other infections (e.g. TB) send two separate samples

†CDC <https://www.cdc.gov/fungal/diseases/blastomycosis/health-professionals.html>

‡Kasper, D.L., Fauci, A.S. *Harrison's Infectious Diseases*. The McGraw-Hill Companies, Inc. 2010.

¹Choptiany, M., Wiebe, L., Limerick, B. et al. Risk factors for acquisition of endemic blastomycosis. *Canadian Journal of Infectious Disease and Medical Microbiology* 2009; Vol 20 No 4, 117-121.

²Chapman, S.W., Dismukes, W.E., Proia, L.A. et al. Clinical practice guidelines for the management of blastomycosis: 2008 Update by the Infectious Diseases Society of America. *Clinical Infectious Diseases* 2008; 46:1801-12.