

Optimal use of laboratory tests Serum (1-3)- β -D-Glucan

TARGET USERS

Health professionals involved in ordering laboratory tests.

OBJECTIVE OF THE TOOL

To support health professionals in the judicious use of clinical laboratory testing.

This clinical tool is provided for informational purposes only and does not replace the clinician's judgment in the exercise of activities reserved to them by law and regulation.

✗ SERUM (1-3)- β -D-GLUCAN TESTING IS NOT INDICATED FOR THE:

- diagnosis of invasive fungal infections
- initiation or monitoring of antifungal treatment

OTHER CONSIDERATIONS

- Serum (1-3)- β -D-glucan testing may be part of a diagnostic strategy in the presence of very specific clinical conditions; requests should be **supervised by a microbiologist-infectious disease physician** engaged in invasive fungal infections diagnosis.
- **Identification techniques** other than serum (1-3)- β -D-glucan testing should be **prioritized** when invasive fungal infection is suspected.

DIAGNOSTIC TESTS TO PRIORITIZE WHEN INVASIVE FUNGAL INFECTION IS SUSPECTED

Suspected Infection	Diagnostic Tests to Prioritize
Yeasts (e.g., <i>Candida</i> spp., <i>Trichosporon</i> spp.)	Tissue cultures, blood cultures and histopathological analyses are considered the preferred methods for establishing a diagnosis.
Filamentous fungi (e.g., <i>Aspergillus</i> spp.)	Galactomannan antigen detection along with culture should be prioritized for diagnosis.
<i>Pneumocystis jirovecii</i>	Nucleic acid amplification testing (NAAT) and immunostaining techniques should be prioritized for diagnosis.

- Serum (1-3)- β -D-glucan testing is performed outside of the Province of Quebec and requires approval from the designated authorizing physician.

RELEVANCE ISSUES

- Serum (1-3)- β -D-glucan testing has limited diagnostic accuracy, with a sensitivity of 65.0% and specificity of 81.1%¹.
- Certain patient treatments (e.g., hemodialysis, blood products, recent surgery) may lead to false-positive results.
- A positive serum (1-3)- β -D-glucan test result does not allow specific fungal pathogen identification.
- Data in the pediatric population are limited, and the positivity threshold for children is not established.

1. Associates of Cape Cod Inc., Fungitell™ - Serum (1-3)- β -D-Glucan Test - Instructions for Use, 2023.

EPIDEMIOLOGICAL DATA

- In Canada, invasive fungal infections are uncommon. The most frequently observed conditions, in order of prevalence, are: invasive candidiasis (without candidemia), candidemia, invasive aspergillosis, *Pneumocystis pneumonia*, and cryptococcosis.

Prevalence of Invasive Fungal Infections in the Canadian Population

 General population
8.28 cases per 100,000 inhabitants

ADDITIONAL CONSIDERATIONS



\$224 / test (2024)*

(excluding transportation charges outside of the Province of Quebec)

In 2024, **527** samples were sent outside of the Province of Quebec for serum (1-3)- β -D-glucan testing.

Excluding transportation charges, these tests alone represent an estimated cost of **\$120,000** for the same period.

* The cost reflects the average test price charged by the analytical laboratories, taking into account the exchange rate between the Canadian dollar and the U.S. dollar at the time of invoicing, excluding packaging and transportation charges. For further details, see the associated [report](#).



Avoiding ordering low-value laboratory tests helps **optimize** the use of **human resources within the healthcare system**, **while also reducing the carbon footprint** by:

- Reducing the use of medical supplies
- Reducing energy consumption
- Limiting patient travel
- Minimizing the environmental impact associated with **sample transport** and the **use of dry ice**

The serum (1-3)- β -D-glucan detection kit contains a reagent that may adversely affect the **vulnerability index** of an endangered species (*Limulus polyphemus*).

The recommendations were developed using a systematic approach and are supported by the scientific literature as well as the knowledge and experience of Quebec clinicians from diverse specialties and areas of expertise. For more details, see [inesss.qc.ca](https://INESSS.qc.ca).

For more details, including references, refer to the **[associated report](#)**.

For any questions relating to clinical tools, write to info-outils.cliniques@inesss.qc.ca.