

Helping to ensure a better transplant
testing journey

3 stages of testing

The transplant testing process is complex, as each patient requires testing before the transplant, frequent testing immediately after, and regular testing in the years that follow. Rising demand and advancing science have led to more transplants and longer survival, resulting in increased testing needs.^{1,2} Get to know the 3 phases of transplant testing.

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Pre-transplant evaluation and pre-operative testing*

1

Blood type testing

Establishes ABO blood type, as recipients and donors must have either the same blood type or compatible ones.³

Human leukocyte antigen (HLA) testing

Matches organ and tissue recipients with compatible donors; also screens for the presence of antibodies that might target the donated tissue or organ as part of an immune response.³

Crossmatch testing

Detects the presence of antibodies in the recipient against the red blood cells of the donor. Occurs several times during living-donor transplant preparation, particularly if donor-specific blood transfusions are employed; a final crossmatch also is performed within 48 hours before the transplant.³

Infectious disease and other testing

Tests for infectious diseases, such as HIV, sexually transmitted infections (STIs), hepatitis cytomegalovirus (CMV), and West Nile virus; also checks the function of the heart, kidneys, liver, thyroid, and/or immune system, blood sugar control, and/or electrolyte balance.³

*Pre-transplant testing is conducted as applicable in a Quest Diagnostics FDA-registered transplant lab using FDA-cleared or approved tests.
Disclaimer: The timeline of infectious disease testing following organ transplantation is not limited to this.



Post-operative monitoring

1

Infectious disease testing <4 weeks post-transplant

Monitoring and testing for donor-derived viruses, *Candida* species, anastomotic leaks, *Clostridioides difficile* (*C. diff*), line and wound infection, nosocomial pneumonia, and urinary tract infections.⁴ Drug toxicity and drug interactions with immunosuppressive agents used to maintain graft function should also be monitored.⁴

2

Infectious disease testing 1–12 months post-transplant

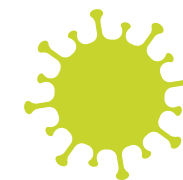
Monitoring and testing for adenovirus, BK polyomavirus, Epstein-Barr virus, hepatitis B and C, herpes simplex virus, human herpesvirus 6 and 7, varicella zoster virus (VZV), *Aspergillus*, endemic fungi, *Mucor*, *Scedosporium*, *Pneumocystis jirovecii*, *Listeria monocytogenes*, *Nocardia* species, *Leishmania* species, *Strongyloides stercoralis*, *Trypanosoma cruzi*, and *Toxoplasma gondii*.⁴

3

Infectious disease testing >12 months post-transplant

Monitoring and testing for community-acquired respiratory viruses, cytomegalovirus, human papillomavirus, JC polyomavirus and PML, PTLD, *Aspergillus*, *Cryptococcus neoformans*, *Mucor*, *Scedosporium*, and *Mycobacterium tuberculosis*, among others.⁴

> See post-transplant
infection risk timeline



Ongoing follow-up and care

1

Regular/routine blood testing

Includes monitoring and testing for evidence of chronic rejection, organ/body function, and effectiveness of post-op treatment. Also requires management of risk factors, led by primary care physician and coordinated with transplant center/team, as cardiovascular disease and renal failure are the leading causes of post-transplant morbidity and mortality independent of graft rejection.²

2

Molecular expression testing

Monitors the activity of specific genes in white blood cells to determine the risk of acute cellular rejection for heart transplant recipients.

3

References:

1. UNOS. Transplant trends. 2021. More organ transplants than ever in a single year. <https://unos.org/data/transplant-trends/>
2. Cimino FM, Snyder KAM. Primary care of the solid organ transplant recipient. *Am Fam Physician*. 2016;93(3):203–210.
3. UCSF Health. Transplant screening tests. <https://www.ucsfhealth.org/education/transplant-screening-tests>
4. Fishman JA. Infection in organ transplantation. *Am J Transplant*. 2017;17:856–879.

A better transplant testing journey for patients and providers

Find out how Quest Diagnostics is powering affordable care through improved experiences and better outcomes across the patient and hospital transplant journey.

Visit QuestAdvanced.com/transplant to learn more.



Post-transplant diseases and average times of onset⁴

