

# Meeting enhanced transplant program performance metrics: the critical role of testing

## Introduction

Striving to make more organs available for transplant, the Organ Procurement and Transplantation Network (OPTN) connects all professionals involved in the US donation and transplantation system. In 2021, the OPTN's bylaws, which outline membership requirements, were updated. New metrics for monitoring the performance of transplant programs are intended to create a safer, more holistic, and more efficient evaluation process.<sup>1,2</sup>

To that end, the new metrics include the assessment of both pre- and post-transplant patient outcomes—an update to the previous metrics, which have only assessed a single phase of patient care: 1-year patient and graft survival.<sup>1</sup>

The new monitoring system includes 4 measures related to the patient journey—2 pre-transplant measures and 2 post-transplant measures.<sup>1</sup>



### Pre-transplant measures

- Rate of pre-transplant deaths
- Ratio of organ offers made to and accepted for candidates

### Post-transplant measures

- 90-day graft survival (an assessment of whether the transplanted organ is functioning)
- 1-year graft survival conditional to the 90-day period

This paper outlines key considerations for health systems and transplant centers as they work to meet each of these 4 criteria—and how laboratory testing and external lab collaborations can support their efforts.

# A more holistic, patient-centered approach to assessing transplant program performance<sup>1</sup>



## Laboratory testing and services can support all 4 metrics

### Pre-transplant mortality rate ratio/ offer acceptance ratio

- Genetic testing, like APOL1
- National footprint for patient access
- Expedited results

### Graft survival hazard ratios (90-day and 1-year)

- Protocol-based infectious disease testing per transplant type
- Genetic testing
- Clinical consultations
- EMR integration and longitudinal data
- Patient engagement programs

# Pre-transplant evaluation



## Pre-transplant mortality rate ratio

Pre-transplant mortality rate assesses how likely a candidate is to die while waiting for a transplant. The **pre-transplant mortality rate ratio** measure compares a transplant program's pre-transplant mortality rate to the program's expected pre-transplant mortality rate based on patient characteristics at time of listing and length of wait-list time.<sup>2</sup>

As a rapidly evolving strategy for the evaluation of living donor candidates and transplant recipients, genetic testing has the potential to improve risk assessment and optimize safety<sup>3</sup>—and it can help health systems and transplant centers meet this new measure.

For example, 10% to 15% of African Americans have a high-risk apolipoprotein L1 (APOL1) genotype, which is strongly associated with chronic kidney disease risk and end-stage kidney disease (ESKD).<sup>4</sup> At least 1 study has shown that living kidney donors with high-risk APOL1 genotypes may have greater declines in postdonation renal function compared to donors with low-risk genotypes. Transplant recipients' postdonation renal function can also be adversely impacted by donors with the high-risk APOL1 genotype.<sup>4</sup> Thus, in the pre-transplant phase, APOL1 genotype information is vital for both kidney donors and recipients—and an APOL1 test can help.

PKD1 and PKD2 testing can be of similar use. The most common inherited cause of kidney disease in adults is autosomal dominant polycystic kidney disease (ADPKD), which is due to variants of 2 genes, *PKD1* and *PKD2*. When ADPKD patients develop ESKD, transplant is the preferred treatment. Because most cases of ADPKD can be diagnosed by genetic testing, it's especially useful when screening related living donor candidates to ensure they don't have the same disease.<sup>3</sup>

# Pre-transplant evaluation



## Offer acceptance ratio

Offer acceptance rate assesses how likely it is that a program will accept and utilize an organ offer for a given candidate. The **offer acceptance ratio** measure assesses a program's observed versus expected offer acceptance rate.<sup>2</sup>

Studies have shown that women, racial and ethnic minorities, and patients in lower socioeconomic groups are less likely to be referred, evaluated, and added to the waiting list for organ transplant.<sup>5</sup> While the reasons for this vary, the focus on metrics may make programs less likely to allocate organs to patients who are not likely to succeed.

As a result, a large percentage of harvested organs don't get placed. In a study that assessed liver transplant center variability, while some transplant centers accepted up to 58% of organ offers, others accepted as few as 16%, turning down the rest.<sup>6</sup>

Again, this is an area where advanced testing can help. The APOL1 test, for example, can support health systems in improving their acceptance rate among minority and underserved patient populations, with the added benefit of advancing health equity. By providing broader access to a range of tests required for patients to qualify for transplant, a lab services provider can help transplant programs identify a greater number of appropriate organs.

A large-scale lab can also address the need for accelerated results, an essential component of offer acceptance. For instance, a lab services provider with a national footprint can make it easier for donors and recipients to get the testing they need faster—so that organs can be utilized more efficiently.

# Pre-transplant evaluation



## Graft survival hazard ratios

The **90-day graft survival hazard ratio** measure assesses the time period immediately post-transplant through Day 90, while the **1-year graft survival hazard ratio** measure assesses the time period between Day 90 and Day 365 post-transplant (only for those recipients whose grafts survive past 90 days).<sup>2</sup>

In order for transplant programs to meet and improve these measures, clinicians must be informed about post-transplant infection, immunosuppression, and antimicrobial treatments. Testing can help by providing these deeper insights for more individualized post-transplant care.<sup>5</sup>

### Identifying infection

Post-transplant, patients are at risk for infection caused by a wide range of viral, fungal, bacterial, and parasitic diseases. In the first 4 weeks post-transplant, patients should be monitored for nosocomial and donor/recipient diseases, like donor-derived viruses, line and wound infections, pneumonia, and urinary tract infections.<sup>7</sup>

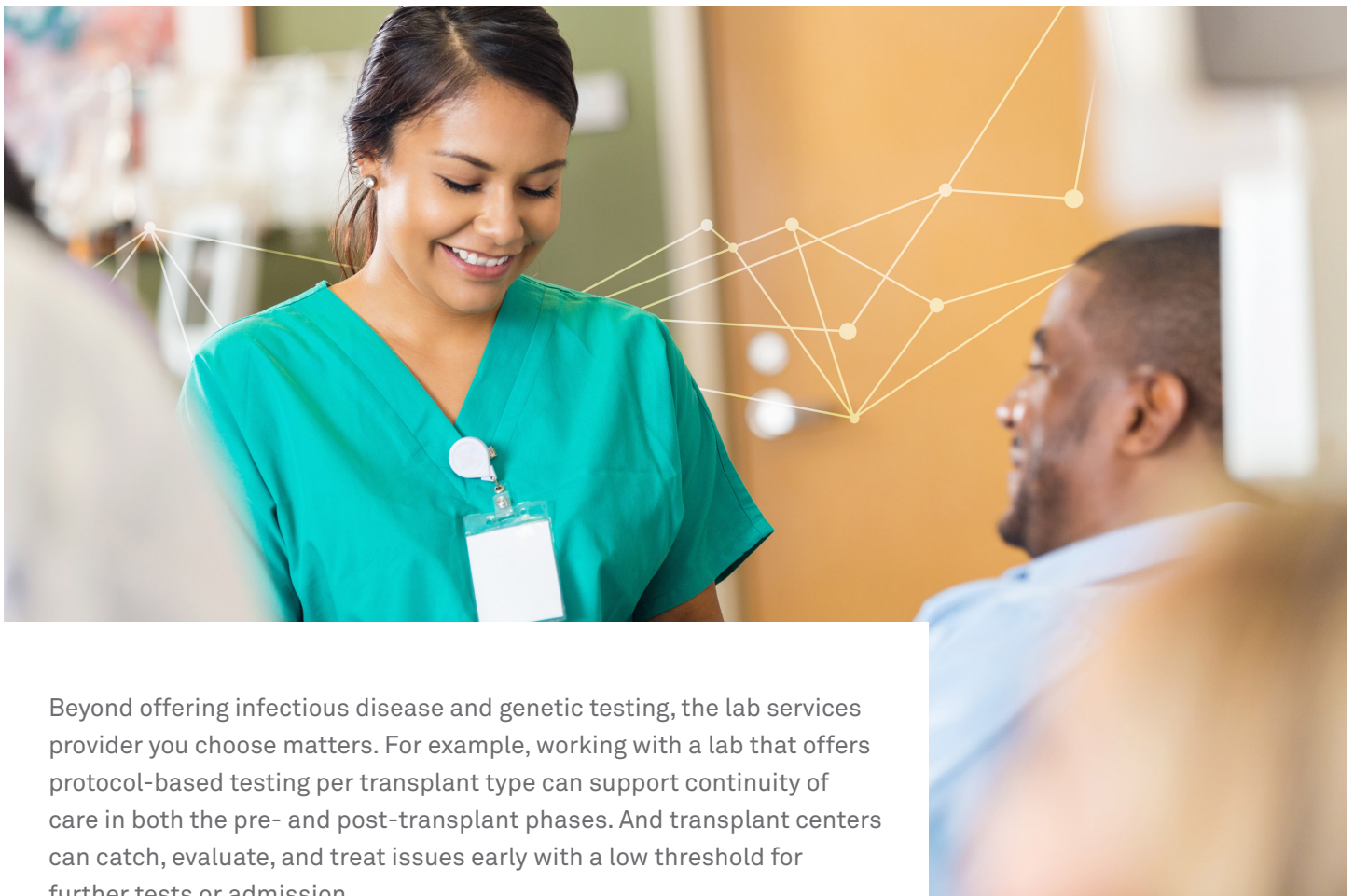
In the 12 months following transplant, patients should be assessed for activation of latent, relapsed, residual, and opportunistic infections, and beyond that, they should be monitored for community-acquired infections.<sup>7</sup>

### Assessing organ function

One example is a type IV collagen gene mutation. In a transplant patient with a rare type of kidney disease—focal segmental glomerulosclerosis—genetic testing for this mutation could reduce concerns about recurrent disease post-transplant and result in less follow-up testing.<sup>8</sup>

Additionally, a growing body of research from the iGeneTRiN consortium suggests that allelic mismatches outside of human leukocyte antigen (HLA) genes between kidney donors and recipients can have important implications for allograft outcomes—helping to determine rejection or survival.<sup>9</sup> APOL1 testing can also help predict kidney transplant recipients' post-transplant renal function—these patients can be adversely impacted by donors with the high-risk APOL1 genotype.<sup>4</sup>

## Additional ways a lab services provider can support best practices



Beyond offering infectious disease and genetic testing, the lab services provider you choose matters. For example, working with a lab that offers protocol-based testing per transplant type can support continuity of care in both the pre- and post-transplant phases. And transplant centers can catch, evaluate, and treat issues early with a low threshold for further tests or admission.

More than testing, some labs offer clinical consultations and EMR integration, both of which can support post-transplant decision-making across a patient's care team, as data can be viewed by clinicians in different locations, at any time.

Unfortunately, rates of noncompliance among post-transplant patients can be high and can include missed appointments and laboratory testing.<sup>10</sup> Working with a lab services provider that offers patient engagement and outreach programs, including home draws and diverse types of patient education materials, can help improve post-transplant testing compliance and adherence for better transplant outcomes overall.

## Conclusion

As the number of US transplants continues to increase, adhering to pre- and post-transplant best practices is absolutely essential to ensure your transplant program is a top choice for patients. Because laboratory testing is a critical component of the transplant process—from periodic reevaluation of patients on wait lists to post-transplant patient monitoring—choosing the right lab services provider to complement and optimize your program can help ensure transplant program quality and success.

A lab services provider that shares the OPTN's dedication to continuous improvement can not only help transplant programs meet all 4 measures of the new monitoring system but also improve the transplant journey for patients and live donors.

## Here for the superior transplant testing experience you need

Quest Advanced Specialized Transplant Services supports OPTN metrics and is committed to providing a superior end-to-end transplant testing experience, including:

- **For clinicians**, streamlined services for expedited care decisions and improved compliance
- **For patients**, convenience, support, and extensive health plan coverage
- **For health systems**, unrivaled infrastructure for easy integration into clinical workflows

Learn more at [QuestDiagnostics.com/Transplant](https://questdiagnostics.com/transplant)

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