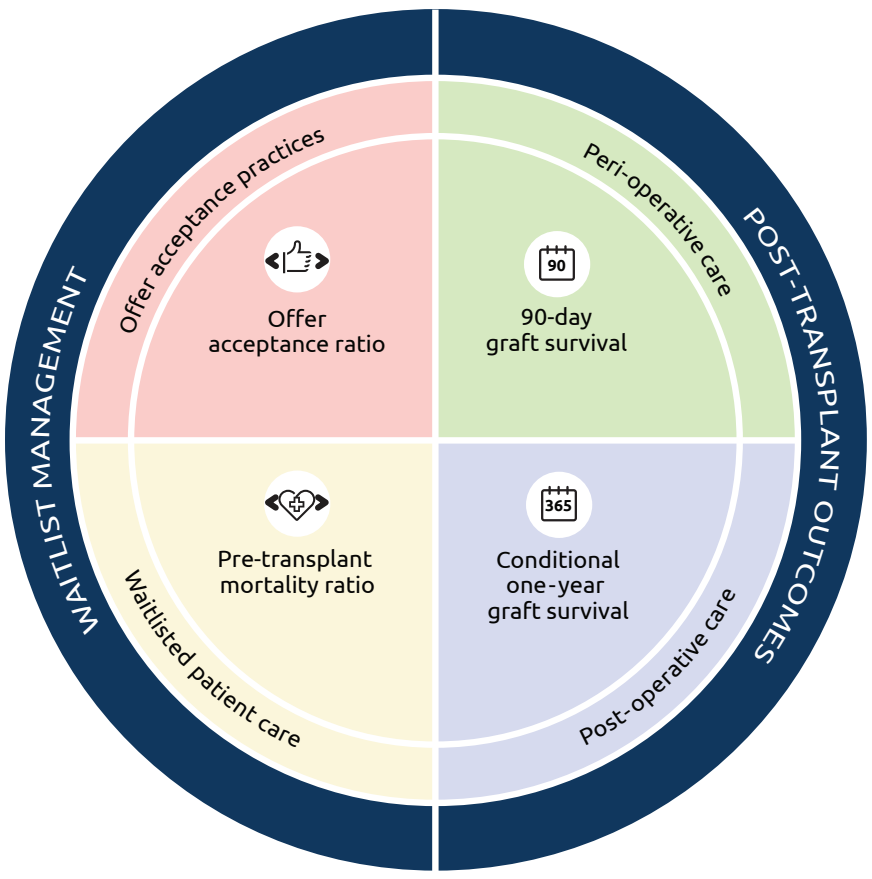
OPTN Enhanced Transplant Program Performance Metrics

In December 2021, the Organ Procurement and Transplantation Network Board of Directors approved new metrics for monitoring the performance of transplant programs. Transplant program performance is evaluated by the OPTN Membership and Professional Standards Committee (MPSC).



The MPSC is taking a more holistic patient-centered approach to assessing performance.

This enhanced approach involves using existing metrics produced by the Scientific Registry of Transplant Recipients (SRTR). The SRTR applies the MPSC performance monitoring criteria to the metrics, and then provides reports to the MPSC for its use in performance monitoring.

This document summarizes the four metrics, which concern multiple phases of transplant care (pre-transplant and post-transplant outcomes).

More detailed information can be found on the SRTR website in the Tools section.

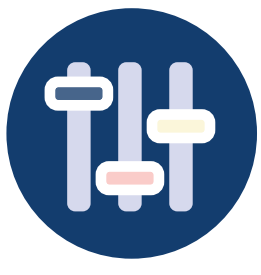
Why did the MPSC choose these metrics?

They will identify patient safety concerns as well as opportunities for improvement

They will measure multiple phases of transplant patient care, and not just what happens after transplant

They will make the system more efficient and increase transplants

Are these metrics risk-adjusted?



Yes, because performance is compared to the national performance for patients or offers with similar characteristics.

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Pre-transplant mortality

This metric compares a transplant program's observed pre-transplant mortality rate to the program's expected pre-transplant mortality rate based on patient characteristics at listing and the length of time the patient has been on the waiting list.

> **Pre-transplant mortality rate:** How likely a candidate is to die while waiting for a transplant

> **Pre-transplant mortality rate ratio:** A program's pre-transplant mortality rate relative to national expectations

$$\frac{\text{Observed pre-transplant mortality rate +2}}{\text{Expected pre-transplant mortality rate +2}}$$

If the ratio is < 1

Candidates experience less risk of death than expected

How are components of the rate ratio calculated?

> **Expected pre-transplant mortality rate:** Death rate expected at this program based on the pre-transplant mortality rate experienced by similar patients across the nation, which are determined by risk-adjusting each candidate with SRTR risk adjustment models

$$\frac{\text{Number of expected pre-transplant deaths at program}}{\text{person years*}} = \text{Expected pre-transplant mortality rate}$$

> **Observed pre-transplant mortality rate:**

$$\frac{\text{Number of pre-transplant deaths at program}}{\text{person years*}} = \text{Observed pre-transplant mortality rate}$$

* Person years calculation detailed in the next section

What patients are included or excluded from the calculations?

Inclusions	Exclusions
Patients listed at program before end of evaluation interval	None
Patients alive at the beginning of the evaluation interval	

Pre-transplant mortality: person years

What are person years and how are they calculated?

Person years considers the total number of candidates and the total number of days that each candidate is observed on a waitlist during the 2-year evaluation interval or cohort.

When calculating person years, the total number of days each candidate was alive on the waiting list is converted into a fraction of a year.

Both active and inactive candidates are included in this calculation.

Then all fractional years for each candidate are added together to equal total person years. Total person years can then be used when calculating an expected or observed pre-transplant mortality rate.

Example of calculating person years

First, calculate the total number of days each candidate was alive on the waiting list

Person 1
182 days on the waitlist

$$\frac{182}{365.25} = 0.498$$

Person 2
300 days on the waitlist

$$\frac{300}{365.25} = 0.821$$

Then add all fractional years for each candidate on the waiting list

	0.498	fractional years
+	0.821	fractional years
	1.319	**total person years**

Explore the SRTR risk adjustment model documentation for the waiting list pre-transplant mortality rate

Offer acceptance

This metric compares a transplant program's observed offer acceptance rate to the program's expected offer acceptance rate.

> **Offer acceptance rate:** How likely a program will accept an offer for a given candidate; offer acceptance is best used for assessing the acceptance and utilization of organs

> **Offer acceptance rate ratio:** Indicates whether the program was more or less likely to accept offers than expected

$$\frac{\text{Number of acceptances} + 2}{\text{Number of expected acceptances} + 2}$$

If the ratio is > 1

The program tends to accept more offers than expected

> **Expected acceptances:** The risk-adjusted number of transplants predicted at the program from the offers received

What are the key ways this metric is risk adjusted?

Adjusts for donor quality and recipient characteristics

Adjusts for donor-candidate interactions such as size and age differences

Adjusts for the number of previous offers (highly predictive of acceptance)

Adjusts for distance of potential recipient from the donor

What kinds of offers are included or excluded from the calculations?

Inclusions

Offers for organs that are eventually accepted and transplanted

Offers to candidates on a single waitlist

Exclusions

Missing or bypassed response

Match run had no acceptances

Offer occurred after last acceptance in a match run

Multiple match runs from same donor combined and duplicate offers excluded

Offers to multi-organ candidates excluded (except K/P candidates that are also listed for kidney alone)

Explore the SRTR risk adjustment model documentation for offer acceptance

Post-transplant outcomes

90-day graft survival hazard ratio

1-year conditional on 90-day graft survival hazard ratio

What's different from the metric previously used by the MPSC?

To calculate these metrics, the previous 1-year graft survival metric is being split into two metrics. Each one reflects a unique aspect of post-transplant care.

90-day graft survival hazard ratio

Looks at the time period immediately post-transplant through day 90 post-transplant

1-year conditional on 90-day graft survival hazard ratio

Looks at the time period from day 90 through day 365 post-transplant, but only for recipients whose grafts survive past 90 days

What is the definition of a failed graft?

A graft is counted as failed if there has been graft failure, a retransplant, or death

What transplants are included or excluded from the calculations?

Inclusions

Single organ transplants occurring during the measurement period

Exclusions

Living donor transplants for any organ other than kidney and liver

Multi-organ transplants

Explore the SRTR risk adjustment model documentation for post-transplant outcomes

Questions?

Contact MPSCReports@unos.org with questions about the enhanced metrics or performance monitoring. The Member Quality Department and the MPSC are your partners in improvement, and support OPTN members by providing feedback and recommendations to develop effective practices.

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