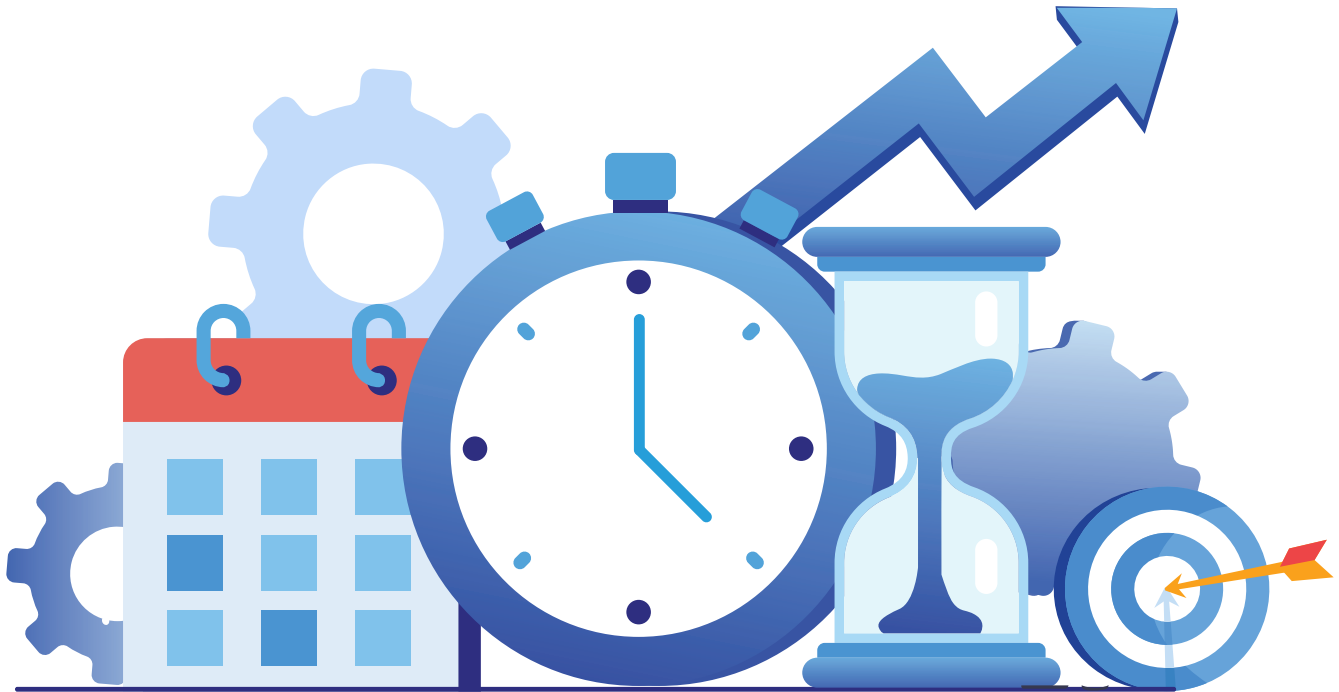




TRANSPLANT QUALITY CORNER

ESSENTIAL QUALITY-FOCUSED TOPICS FOR TRANSPLANTATION

JANUARY 2024



Pre-Transplant Mortality: The Newest MPSC Metric



THE Alliance

*Equipping a Modern Profession of Lifesavers
in Organ Donation & Transplantation*



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EDITOR'S NOTE

The Transplant Quality Corner offers a series of publications that focus on the latest metrics, data collection and monitoring methods for improving transplant center outcomes. Each issue includes an executive summary, background information, essential tools, action items to implement, references and downloadable resources. This issue provides a summary of education on the newest MPSC metric on pre-transplant mortality.



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We would like to express our sincerest gratitude for our contributors' tireless efforts on making Transplant Quality Corner a reality. Their dedication and expertise have been an invaluable contribution to the successful launch of this project. We are incredibly grateful for all their hard work and commitment.

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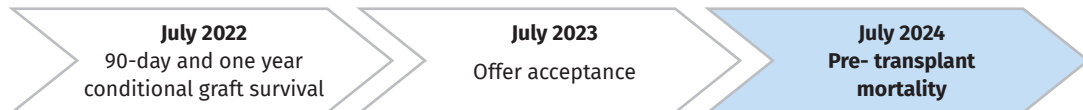
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EXECUTIVE SUMMARY



In December 2021, the OPTN Board of Directors approved new metrics for monitoring the performance of transplant programs, including pre-transplant mortality. This document provides a summary of **education** on the new pre-transplant mortality metric, **tools** to understand current performance, and **action** items for transplant centers to implement.



ACTIONS: HOW CAN TRANSPLANT CENTERS IMPROVE THEIR PRE-TRANSPLANT MORTALITY HAZARD RATIO?

SIX OPPORTUNITES TO IMPROVE PRE-TRANSPLANT MORTALITY	ACTION ITEMS
Education	<ul style="list-style-type: none"> Understand the difference between previously reported waitlist mortality and the new pre-transplant mortality Create an easy visualization to educate your teams about the changes in the new metric Familiarize yourself with the available resources Get creative!
Look at your data and look at it frequently! Examine current waitlist habits and determine opportunities for improvement	<ul style="list-style-type: none"> Examine current listing practices: are you listing appropriate candidates? Are candidates languishing on the list? Are you listing too early or too late? Examine your removal practices: do you have removal criteria? Look at re-evaluation process: when was your patient last seen? Be familiar with risk adjustment factors + their impact
Develop waitlist protocols	<ul style="list-style-type: none"> Develop protocols to standardize waitlist management If you currently have waitlist protocols, do they need to be updated?
Develop a case review forum	<ul style="list-style-type: none"> Add pre-transplant mortalities to existing M&M structure and/or present during QAPI meetings Consider visualizations when presenting (Figure 1) Look for opportunities for improvement and any trends
Develop a pre-transplant mortality monitoring system	<ul style="list-style-type: none"> Real-time system to identify when you need a programmatic review prior to published SRTR data Explore and understand the Waitlisted Expected Worksheet on secure SRTR site Consider developing a forecasting tool, which considers a rolling mortality rate and future listing practices
Pre-transplant optimization of candidates	<ul style="list-style-type: none"> Collaboration and partnership with other specialists prior to and after transplant Optimize nutrition and frailty status prior to transplant When possible incorporation of telehealth for more frequent wellness check ins. Pre-habilitation program where OT, PT, and nutritional elements are frequently assessed, and treatment/follow-up is provided



EDUCATION: THE NEW PRE-TRANSPLANT MORTALITY METRIC (PREVIOUSLY KNOWN AS WAITLIST MORTALITY)

Background

Historically, the OPTN Membership and Professional Standards Committee (MPSC) only focused on measuring performance in the post-transplant period. The new metrics encompass the entire patient care experience. These new metrics include 90-day and one-year conditional graft survival (released July 2022), offer acceptance (July 2023), and pre-transplant mortality (expected to be released in July 2024). Pre-transplant mortality compares a transplant program’s observed pre-transplant mortality rate to its expected pre-transplant mortality rate using a rolling 24-month cohort. Any patient who was listed and alive for at least one day before the end of the 24-month period is included.

Previously, all waitlist removals were tracked for 60 days post-removal; any death after that point was not counted. With the new pre-transplant mortality metric, candidates are tracked for the entire two-year cohort period, with only a few exceptions:

- Transplanted
- Transferred to another center
- Removal for recovery – these candidates are still tracked for 60 days post-removal but then are excluded

Figure 1: Pre-Transplant Mortality Scenarios: July 2024 SRTR Release

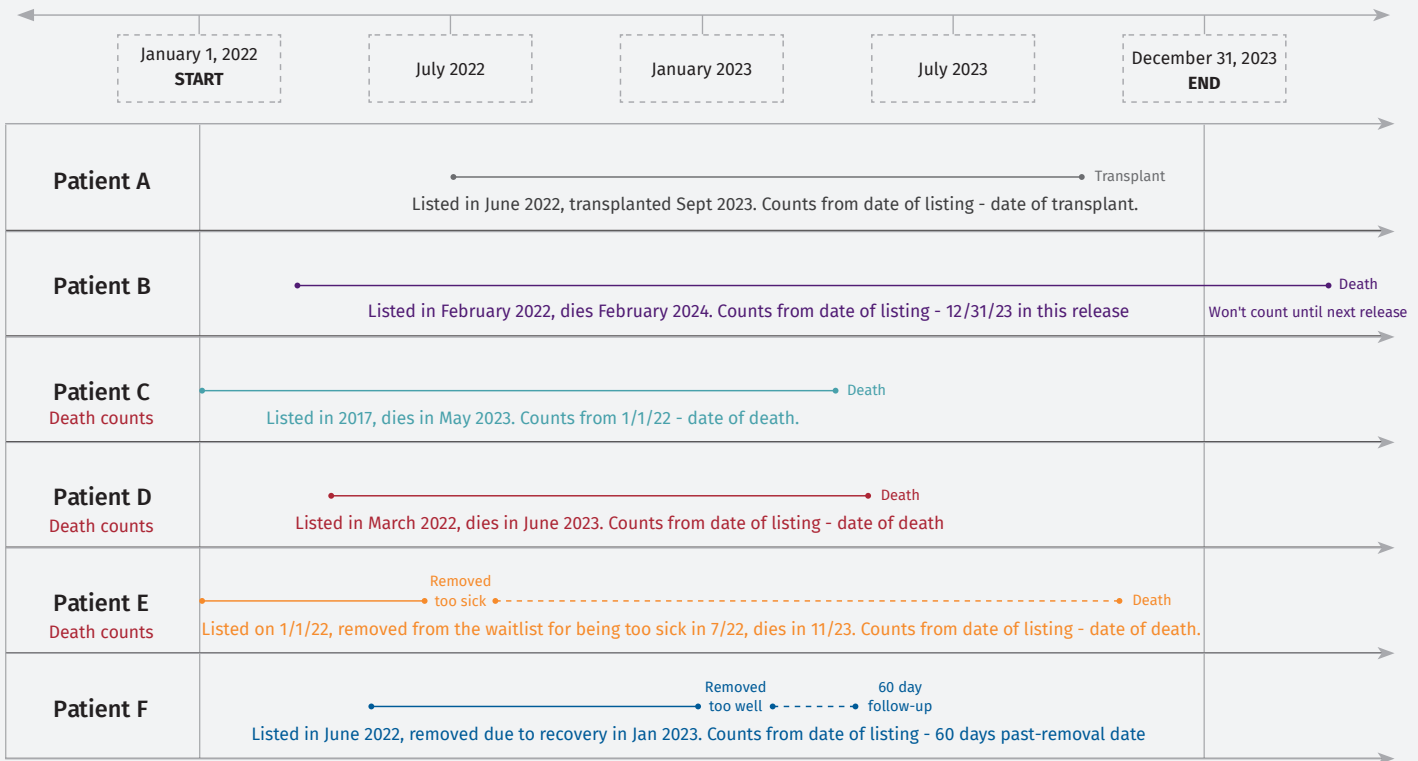




Figure 2: MPSC Pre-Transplant Review Criteria (not public)

	Pre-Transplant Mortality
Number***	1,053
Observed events	204
Expected events	160.255
Hazard Ratio (HR)	1.270
Probability HR > boundary**	0.000
Identified for review	No
Identified in Yellow-Zone	No

- **Cohort:** the time period being examined. For July 2024 release will be January 2022 through December 2023.
- **Number:** the number of patients on the waitlist at the start of the cohort. This **does not include** patients who are added to the waitlist over the course of the cohort and are included in the model.
- **Observed events:** total number of pre-transplant deaths for any patient who was alive and listed during the cohort.
- **Expected events:** expected number of pre-transplant deaths. This is risk adjusted and based on patient characteristics at time of listing and the length of time the patient has been on the waiting list. Risk adjustment factors change with each SRTR release and can be found on the public SRTR website. See Additional Resources for how to locate.
- **Hazard ratio (HR):**

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

$$\text{Observed pre-transplant mortality rate} = \frac{\text{Observed \# of pre-transplant deaths}}{\text{Person years}^*}$$

$$\text{Expected pre-transplant mortality rate} = \frac{\text{Expected \# of pre-transplant deaths}}{\text{Person years}^*}$$

***What is “person years” and how is it 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 two-year cohort. When calculating, the total number of days each candidate was alive on the waiting list is converted into a fraction of a year, and then all fractional years for each candidate are added together to equal total person years.

<p>PERSON 1</p> <p>182 days on the waitlist</p> $\frac{182}{365.25} = 0.498$	<p>PERSON 2</p> <p>300 days on the waitlist</p> $\frac{300}{365.25} = 0.821$	$\frac{0.498 \text{ fractional years} + 0.821 \text{ fractional years}}{1.319 \text{ total person years}}$
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Figure 3: MPSC Metric Performance Thresholds

Identified for Yellow-Zone

Centers are identified for the Yellow-Zone if there is a greater than 50% probability of meeting any of the following criteria

	ADULT	PEDIATRIC
90-day post transplant mortality hazard ratio exceeds:	1.5	1.35
1-year conditional on 90-day graft survival hazard ratio exceeds:	1.5	1.35
Pre-Transplant mortality hazard ratio exceeds:	1.5	1.5
Offer acceptance rate hazard ratio is lower than:	0.4	0.45

Identified for Review

Center are identified for review if there is a greater than 50% probability of meeting any of the following criteria

	ADULT	PEDIATRIC
90-day post transplant mortality hazard ratio exceeds:	1.75	1.6
1-year conditional on 90-day graft survival hazard ratio exceeds:	1.75	1.6
Pre-Transplant mortality hazard ratio exceeds:	1.75	1.75
Offer acceptance rate hazard ratio is lower than:	0.3	0.35

To monitor transplant centers' performance, the MPSC developed performance thresholds for each of the new metrics.

"Identified for yellow-zone" indicates a program is in an area of performance improvement, and that program will receive a notice of this as well as an offer of assistance through OPTN individual Member Focused Improvement (IMFI) group.

"Identified for review" indicates a program is identified for mandatory MPSC inquiry. Centers are flagged if there is a greater than 50% probability of meeting the hazard ratio criteria.

Figure 4: SRTR PSR Pre-Transplant Mortality Practices

Figure B4. Observed and expected pre-transplant mortality rates: 01/01/2021 - 12/31/2022

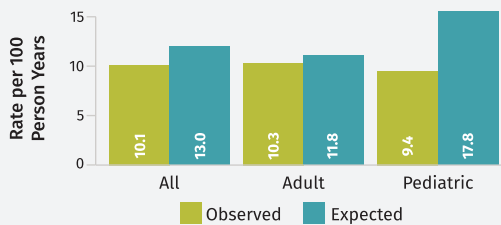


Figure B6. Observed adult (18+) and pediatric (<18) pre-transplant mortality rates: 01/01/2021 - 12/31/2022

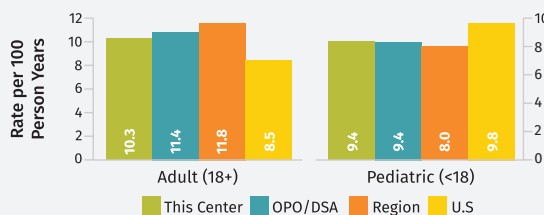
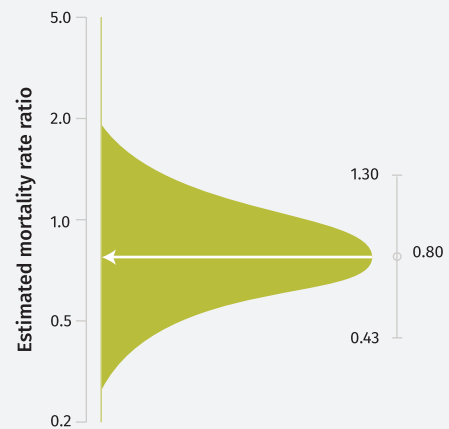


Figure B5. Pre-transplant mortality rates ratio estimate





How do I know how my center is currently doing?

1. **NEW MPSC Pre-Transplant Review Criteria** document (Figure 2) – released every 6 months with SRTR PSR Reports. The interval being reviewed for pre-transplant mortality is a rolling two-year period and changes with each SRTR release. Adult and pediatric pre-transplant mortality practices are reported separately.
2. **SRTR PSR Reports** (Figure 4) - released every 6 months. The time being evaluated is a rolling two-year period and changes with each SRTR release. Adult and pediatric pre-transplant mortality practices are reported separately with a combined hazard ratio.
 - a. **Table B5: Pre-transplant mortality rates, Figure B4: Observed and expected pre-transplant mortality rates, Figure B5: Pre-transplant mortality rate ratio estimate, and Figure B6: Observed adult (18+) and pediatric (<18) pre-transplant mortality rates.**



TOOLS: *WHAT TOOLS ARE AVAILABLE TO ASSIST IN IMPROVING PRE-TRANSPLANT MORTALITY?*

- **Secure SRTR website**
 - Waitlist expected worksheet
 - Includes all granular data that was published in the latest SRTR release
 - Provides worksheets to look at subsets of your transplant center’s waitlist population to determine waitlist mortality rate ratio
- **OPTN**
 - In the second half of 2024, pre-transplant mortality data will be added to the MPSC Transplant Metrics Dashboard found in the OPTN Visual Analytics section of the Data Services portal. This will allow users to explore how subgroups impact their performance with this metric.
 - Available in the OPTN Data Files section of the Data Services portal is a “Report of Deaths on the Waiting List”
 - One report per organ type (Kidney, Liver, Heart, etc.)
 - Includes 1) patients removed from the waitlist for reason of death 2) patients removed from the waitlist for a reason other than transplant and identified as a death from an external data source and 3) patients still on the waitlist and identified as a death from an external data source.
 - Details such as date of removal and date of death included in the report.
- **UNOS**
 - A new forecasting tool for transplant hospitals related to performance metrics coming in spring 2024.
 - Initial release will include both post-transplant outcomes and pre-transplant mortality.
 - Tool allows user to look forward several cohorts so programs can more easily track their progress with these metrics prior to release of reports.



Additional Resources

- How to access risk adjustment factors from the SRTR public website:
 - Go to public SRTR website (www.srtr.org)
 - Tools ⇒ Risk Adjustment Models ⇒ Waiting List ⇒ Pre-transplant Mortality Rate (previously labeled waitlist mortality rate)
 - Choose organ of interest and age group ⇒ click on “Model Coefficients” tab and then download .csv file. This will show you which factors are risk adjusted for the candidate, as well as the impact of each factor.
- How to see reported pre-transplant mortality programmatic information on SRTR secure website:
 - Go to secure SRTR site (<https://securesrtr.transplant.hrsa.gov/home/>)
 - Reports ⇒ either Current Release or Archives ⇒ Program
 - Download Waitlist Expected Worksheet

References

<https://optn.transplant.hrsa.gov/policies-bylaws/enhance-transplant-program-performance-monitoring/>

https://optn.transplant.hrsa.gov/media/r5lmmgcl/mpsc_performancemetrics_3242022b.pdf

https://optn.transplant.hrsa.gov/media/4790/2021_aug_pc_mpsc_enhance-performance-monitoring.pdf

<https://www.srtr.org/faqs/for-transplant-center-professionals/>

<https://www.youtube.com/watch?v=6DJj4XXeq74>



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