SRC – AMS Meeting Minutes

Analytical Methods Subcommittee Teleconference

February 10, 2026; 10:00 AM – 12:30 PM CDT

Voting Members:
William Parker, MD, MSCP, PhD (co-chair) ('26)
Jonathan (JD) Daw, PhD ('27)
Syed Ali Husain, MD, MPH, MA, FASN ('26)
Kyle Jackson, MD, PhD ('28)
Brian Wayda, MD, PhD ('28)
Wenbo Wu, PhD ('28)

Not in attendance:
Joel Adler, MD, MPH ('26)
Yong-Fang Kuo, PhD ('27)

Ex-Officio:
Shannon Dunne, JD (HRSA)
Sarah Laskey, PhD (HRSA)
Grace Lyden, PhD (SRTR staff co-chair)

Not in attendance:
Adriana Alvarez, MS (HRSA)
Brianna Doby, MPH (HRSA)

SRTR Staff:
Avery Cook, MPH, MSW
Tonya Eberhard
Amy Ketterer
Maria Masotti, PhD
Jon Miller, PhD
Sydney Kletter Sharma
Jon Snyder, PhD, MS
Nicholas Wood, PhD
David Zaun, MS

Not in attendance:
Allyson Hart, MD, MS
Ryutaro Hirose, MD
Larry Hunsicker, MD, PhD
Roslyn Mannon, MD, FASN

Welcome and introductions for new members

The meeting opened with remarks by Dr. Grace Lyden, the Scientific Registry of Transplant Recipients (SRTR) Review Committee (SRC) co-chair for the Analytical Methods Subcommittee (AMS). She introduced herself, welcomed the new and existing subcommittee members, and asked each member to share a bit about their background and what brought them to the AMS. Co-chair Dr. Will Parker introduced himself and briefly shared his background; he was followed by existing members Dr. JD Daw and Dr. Ali Husain and new members Dr. Brian Wayda and Dr. Wenbo Wu. Staff from the Health Resources and Services Administration (HRSA) gave introductions, as did pertinent SRTR staff members.

Tiers for programs with no recent transplants

Dr. Lyden revisited the topic of publishing tier ratings for programs that have performed no transplants for the most recent year. She gave a brief overview of the tier rating system on the SRTR website, including background on methodology and score calculation.

Dr. Lyden explained that the website had been inconsistent: on the search page, some pediatric programs with zero transplants in the past year still showed pretransplant and posttransplant tiers, because those tiers were based on earlier multiyear evaluation cohorts. But on the program detail/interactive page, those same programs would show messages like "no pediatric heart transplants performed," with no tiers. This discrepancy was brought to SRTR's attention by a children's hospital, which pointed out that it was confusing and potentially misleading for families,

especially when an adult center with essentially no active pediatric program was appearing "above" a true pediatric center in search results.

Dr. Lyden summarized that they took this question to the Patient and Family Affairs Subcommittee (PFAS) in July. PFAS recommended not publishing five-tier ratings when a program has zero transplants in the most recent 1-year period. Their reasoning: (1) displaying tiers in this setting is misleading, since tiers would be based on tiny historical cohorts (often just one to two patients); (2) it can be punitive to active pediatric centers, as inactive or barely active "programs" appear competitive in search results; and (3) it wastes families' time, as they may call centers that are not meaningfully performing pediatric transplants. Based on that, SRTR plans to change the website so that if the "number of transplants in the last year" column is zero, all five-tier ratings will be shown as "not assessed," and the center's ordering in results will update accordingly. PFAS also preferred using a single recent year of transplant volume for this decision, to better flag centers that have truly been inactive in a recent period, even if they did some transplants further in the past.

Dr. Daw noted that this rule is driven by transplant volume, so a center with a very large waiting list but zero transplants would not get a poor tier, even though that could reflect serious quality problems; instead, its poor performance would be visible only in the raw metrics (eg, a very low transplant rate, which is still published even without tiers). Dr. Lyden acknowledged the trade-off but stressed that (a) the underlying data remain fully available and (b) PFAS strongly favored using "number of transplants" as the active-program signal. Dr. Husain added that, from a patient-facing perspective, it is probably a poorer reflection on program quality to convey "this is not really a program" than to show a bad tier; Dr. Lyden mentioned previous research suggesting that patients tend to interpret "not assessed" as worse than a low tier.

Pretransplant mortality metric: Adjusting for pediatric multivisceral candidates

Dr. Lyden brought up a concern from a pediatric liver program that they were being penalized in the pretransplant mortality metric because many of their patients are multivisceral candidates (liver + intestine + pancreas). The program argued that SRTR's current risk adjustment does not sufficiently capture how uniquely sick this group is. They noted that two of the highest-volume pediatric multivisceral programs both have higher-than-expected pretransplant mortality, suggesting a possible systematic under-adjustment. Their requests were (1) better or explicit adjustment for multivisceral status (beyond MELD/PELD [model for end-stage liver disease/pediatric end-stage liver disease] and standard covariates) and (2) ideally, exclusion of multiorgan candidates from the pretransplant metric, as is historically done for many posttransplant metrics.

Dr. Lyden explained SRTR's current approach. In the pediatric liver pretransplant mortality model, "multivisceral" is operationally defined as a liver candidate who is also listed for intestine or pancreas (or both) within 30 days of liver listing, identified by merging listings across organs via person IDs. That indicator is fed into a Poisson survival model with LASSO (least absolute shrinkage and selection operator) variable selection: sometimes it's selected (eg, July 2025 cycle), sometimes not (January 2026 cycle). Dr. Lyden noted that the expected number of deaths for multivisceral candidates tends to be similar regardless of whether the indicator is selected, because much of their excess risk appears to be captured by other covariates already in the model. Dr. Lyden showed calibration checks: nationally, among non-multivisceral pediatric liver candidates, observed deaths

were roughly equal to expected deaths (good calibration), but among multivisceral candidates, observed deaths exceeded expected deaths, indicating possible underestimation of risk for this group. At the program level, there was a significant positive relationship between multivisceral proportion and pretransplant mortality rate ratio, but this relationship disappeared when excluding the two highest-volume multivisceral centers—leaving it ambiguous whether the problem is model misspecification or genuinely worse outcomes at those specific centers.

Dr. Parker suggested a relaxed LASSO approach to unbias the LASSO-estimated coefficients; he noted that this may improve model calibration even when multivisceral status is not selected. Dr. Daw suggested an exploratory analysis with interactions or stratification by multivisceral status, to identify characteristics that may have different effects on mortality for multivisceral patients. He asked which characteristics might interact with multivisceral status, from a clinical perspective. He also noted that a longer historical cohort (with larger sample size) may be needed to adequately explore this, and Dr. Lyden agreed that SRTR could undertake this as a research project to inform the program-specific report (PSR) model. Dr. Husain asked if multivisceral liver candidates tend to have a particular diagnosis that SRTR could adjust for, and Dr. Kyle Jackson said many have short gut or necrotizing enterocolitis (NEC). Dr. Lyden noted that if the same diagnosis also applies to some of the non-multivisceral pediatric liver candidates, then the variable may be more likely to be selected due to higher sample size. Dr. Jon Miller suggested that information could be used from the intestine or pancreas listings for risk adjustment within the multivisceral patients. Dr. Parker said that, when it comes to the types of errors that program evaluations can make, it is better to err on the side of more flagging of pediatric deaths, and Dr. Lyden noted that the Membership and Professional Standards Committee (MPSC) has signaled this same preference for the pediatric population.

Dr. Lyden asked AMS members if they would recommend reporting results separately by multivisceral and non-multivisceral status. Dr. Daw said he would only support this if the expected models were stratified and substantially different by multivisceral status. The group agreed that it may not be possible to fit an expected model in multivisceral patients alone due to small sample size during the 2-year evaluation period (N=76 nationally). Dr. Wayda asked if SRTR had considered expanding beyond 2 years to build risk-adjustment models for small populations, and Dr. Lyden agreed that this was an idea worth exploring, especially for multiorgan and pediatric populations.

Pretransplant mortality metric in age of machine perfusion and short waiting times for liver transplant

Dr. Lyden discussed a pair of letters to the editor in *Liver Transplantation* that questioned whether SRTR's pretransplant mortality metric is still useful in the modern era of short liver waiting times and widespread normothermic machine perfusion (NMP). The authors highlighted a specific center (Intermountain Medical Center in Murray, UT: UTLD) where the pretransplant mortality observed-to-expected (O/E) ratio looked worse than expected, yet their "mortality after listing" (survival from listing, without censoring at transplant) looked much better than expected. They argued that in settings with very short waiting times, a single death can disproportionately worsen the pretransplant metric because the total at-risk time (denominator) is small, and they suggested that

metrics like mortality after listing better reflect overall program quality in such circumstances. They also proposed removing pretransplant mortality from public search results.

Dr. Lyden explained that she and the SRTR team had performed a series of empirical analyses to explore these issues. First, they plotted pretransplant mortality O/E ratios against total patient-years on the waiting list and found no systematic relationship: shorter follow-up did not generally correspond to higher adjusted pretransplant mortality. Second, they examined the relationship between transplant rate (O/E) and pretransplant mortality (O/E) and again found no significant correlation; programs with very high transplant rates did not systematically show worse risk-adjusted pretransplant mortality. Similarly, there was no relationship between the transplant rate tier score and pretransplant mortality tier score. When they looked at the proportion of NMP use at each liver program versus pretransplant mortality, they also found no clear association, although they cautioned that NMP data are incomplete when perfusion is initiated at the recipient center ("back-to-base" cases). Overall, the data suggest that the UTLD example is not representative of a general bias against programs with short waiting times or high transplant rates. Dr. Lyden reiterated that pretransplant mortality and transplant rate are intentionally designed to capture different dimensions of the waitlist experience—how patients are cared for while waiting versus how quickly they receive a transplant—and both contribute to survival after listing, which is a composite outcome and highly relevant to patients. Dr. Lyden noted that SRTR is already planning a website redesign in which the primary dial/tier shown will be overall survival after listing, with pretransplant mortality, transplant rate, and posttransplant graft survival still available but "one click deeper."

The group then discussed interpretation and future positioning of the metric. Members agreed with the SRTR interpretation of analyses showing no systematic bias against centers with high transplant rates and that pretransplant mortality remains valuable because it isolates center-controllable aspects of waitlist care by censoring at transplant. In any written or formal response to the letters, the committee leaned toward (1) agreeing that survival after listing should be the headline patient metric, (2) presenting the national analyses showing no systematic harm to centers with higher transplant rate or shorter waiting times, and (3) reaffirming the complementary role of pretransplant mortality alongside other metrics as a distinct quality signal for both programs and regulators (eg, the MPSC).

Historical priors update

Dr. Lyden turned to the "historical priors" proposal, which is aimed at addressing a known limitation of the current Bayesian framework: small programs have fewer data to "pull away from" Tier 3 under the current gamma(2,2) prior, therefore it is more difficult to identify exceptional performance (good or bad) in small programs. Dr. Lyden showed that for pretransplant mortality and 1-year graft survival in a recent evaluation, the smallest tercile of programs by number of expected events had almost no Tier 1 or Tier 5 assignments, while larger programs spanned the full range of tiers. The proposed solution is to replace the universal gamma(2,2) prior with a program-specific prior that incorporates historical performance from the most recent non-overlapping evaluation cycle for that same organ, age group, and metric.

Dr. Lyden outlined the technical design: the historical prior would be a mixture between the neutral gamma(2,2) prior (mean 1) and a gamma prior derived from the program's previous O/E, using the published O_past and E_past values. Two major refinements were introduced to address earlier AMS concerns. First, they would constrain the variance of the prior to match that of gamma(2,2), ensuring the prior is similarly uninformative regardless of program size; historical information would shift the prior mean but not affect the prior variance. Second, the weight placed on historical data (w) would be made inversely proportional to current program size, using the current cycle's expected events (E) as the size proxy. Below a chosen threshold E_min, the weight on historical data decreases linearly as E increases; once E ≥ E_min, the weight on historical data has decreased to 0 and the prior reverts to gamma(2,2) (no historical borrow). This means historical priors meaningfully affect small programs but effectively turn off for large programs, where the current-cycle data are sufficient to determine program performance without borrowing historical data.

Using an interactive app, Dr. Lyden and Dr. Nick Wood showed that with an example E_min of 20 expected events, historical priors decrease the proportion of Tier 3 ratings and increase Tiers 1 and 5 for small programs, with no impact on large programs. Power simulations for MPSC flagging indicated that historical priors improve detection of consistently poor performers, especially among small and mid-sized centers, without materially weakening detection when performance worsened recently. Committee members raised design questions, including whether E_min should be metric-specific or organ-specific (Dr. Parker), whether the weight should decay smoothly rather than hit a hard threshold (Dr. Daw), and how to handle changing program size over time (Dr. Wayda). Drs. Lyden and Wood discussed the benefits of having a consistent E_min across metrics and organs, based on an overarching definition of "sufficient" sample size; this approach would be in alignment with statistical power calculations, which do not vary based on context-specific event frequency. Members discussed moving the proposal forward to MPSC, with the exact choice of E_min and related tuning to be further explored (via the app, additional analyses, and possibly subgroup or email-based follow-up). Dr. Parker motioned to take a vote to move the proposal forward to the MPSC for their input, which was seconded by Dr. Wayda.

[In the chat, Dr. Parker, Dr. Daw, Dr. Husain, Dr. Jackson, and Dr. Wayda voted in favor.]

[Dr. Adler provided a suggestion about E_min selection in an email following the meeting.]

Closing business

With no other business being heard, Dr. Lyden concluded the meeting by thanking all presenters and participants. The next meeting is scheduled for Monday, May 4, 2026, at 10:00 AM CT.