

**OPTN Kidney Transplantation Committee
Biopsy Best Practices Workgroup
Meeting Summary
October 25, 2021
Conference Call**

Andrew Weiss, MD, Chair

Introduction

The Biopsy Best Practices Workgroup (the Workgroup) met via teleconference on 10/25/2021 to discuss the following agenda items:

1. Project Timeline Review and Updates
2. Discussion: Pathologist Feedback Roundup
3. Information Technology (IT) Implementation Questions and Information
4. Review Current Biopsy Data Collection and Use
5. Finalize Project: Standardized Pathology Report
6. Data Report Follow Up: Minimum Donor Criteria Required for Biopsy
7. Finalize Project: Minimum Donor Criteria Required for Biopsy

The following is a summary of the Workgroup's discussions.

1. Project Timeline Review and Updates

The Workgroup reviewed the project timeline, and received updates from presentations to the OPTN Data Advisory Committee, Policy Oversight Committee, and Financial Impact Group.

Summary of discussion:

The Workgroup had no questions or comments.

2. Discussion: Pathologist Feedback Roundup

The Workgroup discussed and shared feedback gathered from their renal, general, and on-call pathologist colleagues.

Data summary:

One member provided feedback from a renal pathologist colleague to be shared via slides. Feedback included:

- Nodular sclerosis should include more granular, spectrum response options
- Interstitial Fibrosis and Tubular Atrophy (IFTA) should have less granular response options at the lowest end, combining 0-10 percent
- Cortical necrosis is rare, and may not need to be its own category
- Cortical necrosis is coagulative necrosis of the tissue with ghost or non-viable cells in all compartments of parenchyma, usually associated with severe vascular injury

Summary of discussion:

One member shared feedback from a group of general and on-call pathologist colleagues. This feedback included:

- Nodular glomerulosclerosis is not specific, and may be difficult for general pathologists to identify. This parameter needs further specification as far as trying to distinguish diabetic glomerulopathy, focal segmental glomerulosclerosis (FSGS), or something else. This may have sudden frozen to permanent diagnosis mismatch.
- Generally, IFTA are seen together, but fibrosis is more difficult to evaluate on a frozen section. Is this asking for these findings together.
- The response options for IFTA are very small categories with 0-5 percent, 5-10 percent, and 11-25 percent. These should be less granular.
- Vascular disease needs specification about indicating based on the most severely narrow vessel
- Fibrin thrombi needs specification as to whether information is requested about arteriolar thrombi or glomerular thrombi

One member remarked that the pathologist feedback presents two conflicting arguments about nodular glomerulosclerosis. The member shared that the College of American Pathologists (CAP) worksheets expect general surgical pathologists to recognize nodular sclerosis. The member continued, commenting that the presence of nodular sclerosis is important information to have, but that quantification can be difficult, as many expert pathologists disagree on quantifying nodular sclerosis.

The Chair asked about IFTA, noting that these are commonly reviewed together, but that there could be concern about the granularity of response options. The Chair added that previously, there had been call for increased granularity there for improved decision making, but that accurate reporting is important. One member agreed that granular responses are much better for decision making and more reproducible on non-frozen tissue, but it is much more difficult to accurately estimate on a finely granular level with frozen tissues, particularly for surgical pathologists not used to looking at kidney samples. The member added that even between frozen and formalin-fixed paraffin-embedded samples, there would rarely be significantly different scores for Interstitial Fibrosis and Tubular Atrophy.

The Chair suggested updating the IFTA response options to 5-25, 26-50, and then greater than 50. A member remarked that this would achieve the most reproducible answers with a frozen tissue, but that this will result in some lost information, as most kidneys fall into the below 25 percent category for utilized kidneys. The member added that it is a matter of balance between reproducibility and increased information.

Staff remarked that the above feedback included merging the bottom two categories together, so that the lowest category was 0-10 percent and then 11-25 percent. Feedback from the Kidney Committee in April asked for increased granularity in IFTA response options.

The Chair shared that the difference between less than 5 percent or greater than 5 percent would be important, and merging the 5-10 percent and 11-25 percent categories into an 11-25 percent category would preserve some information. The Chair asked the Workgroup if they felt the response options were too granular for pathologists to reliably provide IFTA estimates.

One member pointed out that in previous discussions, the bottom two response options of 0-5 percent and 5-10 percent were split because it was difficult to distinguish between 1 and 6 percent. The member added that these do not need to be exact, and that this is asking for an assessment. Another member agreed, noting that asking for exact percentages is too much, but providing minimal, mild, moderate, severe response options are reasonable.

Staff explained that the Workgroup has the option to recommend the current standardized pathology report and parameters as is, and ask for feedback about the granularity of response options in public comment. Once public comment closes, that feedback can be considered and the response options

could be adjusted accordingly. Several members expressed support for recommending the standardized pathology report, parameters, and response options as is, and requesting specific feedback on granularity during public comment.

A member recommended updating the nodular sclerosis terminology to specify Nodular Mesangial Glomerulosclerosis, to improve clarity for general pathologists. The Workgroup supported updating the parameter terminology to Nodular Mesangial Glomerulosclerosis.

3. Review Current Biopsy Data Collection and Use

The Workgroup reviewed current biopsy data collection and use, including current state biopsy data collection in DonorNet® and the Deceased Donor Registration Form (DDR) in TIEDI®.

Data summary:

DonorNet currently collects the following parameters if a biopsy is selected as performed: Percent Glomerulosclerosis, Biopsy Type, and Glomeruli count.

The DDR currently collects the following parameters if an OPO indicates a kidney biopsy is performed: Type of Biopsy, Interstitial Fibrosis, Vascular Changes, Number of Glomeruli Visualized, and Percent Glomerulosclerosis.

The SRTR utilizes information from DonorNet and TIEDI, and uses the following data:

- Donor minimum glomerulosclerosis percentage is used in adult kidney patient survival risk adjustment 1- and 3- year outcome models
- Completed biopsy (yes/no) is included in the kidney offer acceptance models
- Lowest and highest glomerulosclerosis percentages are in the kidney donor yield model

Models used by the SRTR are updated on a rolling cycle and refit every program-specific report (PSR) and organ procurement organization (OPO) specific report (OSR) release semiannually.

Summary of discussion:

The Workgroup had no questions or comments.

4. IT Implementation Questions and Information

Staff presented several potential versions of the Workgroup's proposed updates to DonorNet®, as well as potential updates to the DDR form in TIEDI®. Staff also explained several operational programming options.

Summary of discussion:

One member remarked that utilizing one comment open text field for kidney seemed reasonable, as opposed to having two for each kidney, one specified for biopsy.

The Workgroup supported programming DonorNet® and TIEDI® DDR forms such that the data cascades to avoid double data entry, and to programming the systems to calculate percent sclerotic glomeruli to reduce the number of fields requiring manual entry and avoid the need for validation. Another member expressed support for reducing double data entry and reducing manual entry wherever possible.

5. Finalize Project: Standardized Pathology Report

The Workgroup discussed recommending updates to the DDR, to align with DonorNet® data collections, and providing sample PDF pathology forms as part of implementation and education.

Summary of discussion:

One member commented that it made the most sense to align data collection in DonorNet® and the DDR. Another member and the Chair agreed, noting that it made sense as long as it didn't prove to be overly burdensome. A member remarked that OPOs are historically very timely at entering data. Other members agreed that aligning the DDR will provide better data and reduce the need for double data entry.

A member asked if the data collection element of the proposal will need to be reviewed by the Office of Management and Budget (OMB). Staff clarified that all aspects of data collection for this proposal will need OMB approval, both DonorNet® and DDR.

The Workgroup achieved consensus to recommend that the DDR and DonorNet® are updated to collect and report biopsy information per the proposed standardized report parameters.

Staff asked if providing a PDF sample of the standardized report would be helpful to OPOs and transplant center members. One member remarked that it would be most helpful on the OPTN site, so that it is widely accessible. Another member asked if the form would be fillable, or just as a PDF, noting that many OPOs have documentation control systems. The member added that any sample form consideration should include potential operationalization with OPO document control systems.

Another member remarked that a sample form would be best operationalized as a PDF, and pointed out that most pathologists fill out and sign paper PDFs and send along scans or pictures to be uploaded to DonorNet. The member added a printable or paper version will be important. Another member agreed, and noted that document control systems simply allow the OPO to customize the form to ensure the most current and accurate form is in use. These systems also allow for the OPO to include their name, identifier, and contact number. Document control systems minimize the chance of error.

6. Data Report Follow Up: Minimum Donor Criteria Required for Biopsy

The Workgroup reviewed additional data requested during their review of the Minimum Donor Criteria for Biopsy report in September, including the discard rate of deceased donor kidneys recovered in 2019 by biopsy status and proposed criteria.

Data summary:

The discard rate for those donors who met criteria and were biopsied (2868) was 47.11 percent. The discard rate for donors who met criteria and were not biopsied (303) was 28.24 percent. The discard rate for donors who did not meet criteria and were biopsied (3648) was 17.15 percent. The discard rate for donors who did not meet criteria and were not biopsied was (4.12 percent).

Summary of discussion:

The Chair remarked that education will be important, and that the proposal and implementation communications will need to articulate that biopsies should be used to try to place kidneys with the recipients who will receive the most benefits, not as a determining factor in organ viability.

7. Finalize Project: Minimum Donor Criteria Required for Biopsy

The Workgroup discussed final recommendations for the Minimum Donor Criteria, including defining a urine output threshold and timeframe for anuria, a timeframe for donor use of renal replacement therapy, and diabetes diagnosis on donor evaluation or management.

Summary of discussion:

The Chair remarked that anuria should be defined as no urine output, and should not include oliguria. A member noted that an oliguric donor would potentially meet these other criteria, and though it's not reflected as an acute kidney injury value in the criteria, it could certainly be considered a good reason to biopsy. One member commented that the urine output values can be very erratic and variable. Only consistent zero urine output values can really be trusted as anuria, but otherwise urine output is not a great indicator. Staff asked if there would be a timeframe of constant zero urine output that would be appropriate. Another member agreed that a timeframe would be important to identify.

The Chair recommended a six hour timeframe with no urine output, with donors managed in the intensive care unit with foley catheters, urine should be seen. The Chair also noted that there likely wasn't a textbook definition for anuria. Another member remarked that they couldn't find a standard definition for anuria, and that there isn't currently a definition for anuria in TIEDI®.

One member agreed that six hours seemed to be a reasonable timeframe. The Workgroup achieved consensus to define the "anuria" criterion as no urine output in six consecutive hours.

Staff asked how the Workgroup wanted to define elevated hemoglobin A1C (HbA1c) or diabetes diagnosis during donor management, sharing that there is some consensus from the American Diabetes Association and others that an HbA1c of 6.5 percent or higher is the cutoff for diagnosing diabetes. The Chair remarked that the recommendations should follow standard, consensus definitions as much as possible, and supported utilizing a HbA1c of 6.5 percent or greater as the part of the diabetes on donor evaluation criterion.

The Workgroup achieved consensus to define "diabetes diagnosis during donor evaluation" as an elevated HbA1c of 6.5 percent or higher during donor evaluation or management.

Staff asked how the workgroup wants to define the time period for renal replacement therapy. The Chair responded that the original framing was in the context of renal replacement therapy during donor workup, evaluation, and management. A donor that had received hemodialysis 10 years prior to treat an AKI episode would not necessarily qualify. Another member agreed that it would need to be during the donor hospitalization.

The Workgroup achieved consensus to define renal replacement therapy as use during the current hospitalization and donor evaluation and management.

Attendance

- **Subcommittee Members**
 - Andrew Weiss
 - Catherine Kling
 - Colleen O'Donnell Flores
 - Dominick Santoriello
 - Jim Kim
 - Julie Kemink
 - Meg Rogers
- **HRSA Representatives**
 - Jim Bowman
 - Jon Miller
 - Marilyn Levi
- **SRTR Staff**
 - Bryn Thompson
 - Grace Lyden
- **UNOS Staff**
 - Lindsay Larkin
 - Kayla Temple
 - Ross Walton
 - Lauren Motley
 - Leah Slife
 - Rebecca Marino
 - Ben Wolford