

## *Public Comment Proposal*

# Further Enhancements to the National Liver Review Board

*OPTN Liver and Intestinal Organ Transplantation Committee*

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# Further Enhancements to the National Liver Review Board

<i>Affected Policies:</i>	<i>Policy 9.5.G: Requirements for Portopulmonary Hypertension MELD or PELD Score Exceptions</i> <i>Policy 9.5.I.i Initial Assessment and Requirements for HCC Exception Requests</i>
<i>Affected Guidelines:</i>	<i>National Liver Review Board Operational Guidelines</i>
<i>Affected Guidance:</i>	<i>Guidance to Liver Transplant Programs and the National Liver Review Board for Adult MELD Exception Review</i>
<i>Sponsoring Committee:</i>	<i>Liver and Intestinal Organ Transplantation</i>
<i>Public Comment Period:</i>	<i>August 4, 2020 – October 1, 2020</i>

## Executive Summary

The purpose of the National Liver Review Board (NLRB), which was implemented on May 14, 2019, is to provide equitable access to transplant for liver candidates whose calculated model for end-stage liver disease (MELD) score or pediatric end-stage liver disease (PELD) score does not accurately reflect the candidate's medical urgency.<sup>1</sup> Since implementation, the OPTN Liver and Intestinal Organ Transplantation Committee (the Committee) has regularly evaluated the NLRB to identify opportunities for improvement. The first round of enhancements to the NLRB was approved by the OPTN Board of Directors (the Board) on June 8, 2020.<sup>2</sup> This proposal represents the second round of enhancements based on further experience with the NLRB.

This proposal seeks to make the following enhancements to the NLRB policy, operational guidelines, and guidance documents in order to make the system more efficient and equitable.

- **Policy:** The proposed changes to policy include updating the criteria for a standardized MELD or PELD exception for portopulmonary hypertension (POPH) to match updated clinical guidelines and creating a more effective process for reviewing *Post-Transplant Explant Pathology* forms for candidates with hepatocellular carcinoma (HCC). Changes to data collection are required to operationalize the updates for the POPH criteria.
- **Operational Guidelines:** The improvements to the operational guidelines include creating a separate Appeals Review Team (ART) specifically for pediatric cases and adding a member of the Committee to each ART.
- **Guidance:** The Committee intends to update the guidance for polycystic liver disease (PLD) to clarify the MELD score recommendation, provide guidance for candidates also requiring a kidney, and add new comorbidities that should be considered for a MELD exception.

The Committee is seeking public feedback on the proposed changes listed above as well as any other aspects of the NLRB.

<sup>1</sup> *Proposal to Establish a National Liver Review Board*, OPTN Liver and Intestinal Organ Transplantation Committee, June 2017, Available at <https://optn.transplant.hrsa.gov/>

<sup>2</sup> *Enhancements to the National Liver Review Board*, OPTN Liver and Intestinal Organ Transplantation Committee, June 2020, Available at <https://optn.transplant.hrsa.gov/>

## Background

When being listed for a liver transplant, candidates receive a calculated MELD or PELD score, which is based on a combination of the candidate's clinical lab values.<sup>3</sup> These scores are designed to reflect the probability of death on the waitlist within a 3-month period, with higher scores indicating a higher probability of mortality and increased urgency for transplant. Candidates who are less than 12 years old receive a PELD score, while candidates who are at least 12 years old receive a MELD score. Candidates that are particularly urgent are assigned a priority 1A or 1B status.

When a transplant program believes that a candidate's calculated MELD or PELD score does not accurately reflect a candidate's medical urgency, they may request a score exception. The NLRB is responsible for reviewing exception requests and either approving or denying the requested score.

The NLRB was approved by the OPTN Board of Directors (the Board) at their June 2017 meeting and was implemented on May 14, 2019.<sup>4</sup> The NLRB was designed to create an efficient and equitable system for reviewing exception requests for candidates across the country.

Since it was implemented, the Committee has regularly evaluated the NLRB to identify opportunities for improvement. In fact, the improvements included in this proposal represent the second round of changes to the NLRB. Prior changes were included in the *Enhancements to the NLRB* proposal that was approved by the Board in June 2020.<sup>5</sup>

## Purpose

Since the implementation of the NLRB, the Committee has carefully evaluated the effectiveness of the system. The Committee has identified a number of ways in which the NLRB could be improved through updates to the NLRB policy, operational guidelines, and guidance documents. The purpose of this proposal is to build upon previous enhancements and continue to improve the NLRB by incorporating feedback from the transplant community. The proposed changes are anticipated to create a more efficient and equitable system for the review of exception requests.

The enhancements included in this proposal involve changes to OPTN policy language, the operational guidelines, and the guidance documents. The operational guidelines outline the function and operation of the NLRB, including who may participate as an NLRB reviewer, the responsibilities of NLRB reviewers, voting procedures, and the appeal process. The guidance documents are intended to provide guidance to review board members and transplant programs to help ensure consistent and equitable review of exception cases. The guidance documents are not OPTN policy and serve as a resource for reviewers and transplant programs. Each of the three specialty review boards (Pediatric, Adult Other Diagnosis, and Adult HCC) has a specific guidance document. The Committee is proposing changes to the guidance documents for the Adult Other Diagnosis specialty review board.

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<sup>3</sup> The calculation for the MELD and PELD scores can be found in OPTN Policy, Available at <https://optn.transplant.hrsa.gov/>.

<sup>4</sup> *Proposal to Establish a National Liver Review Board*, OPTN Liver and Intestinal Organ Transplantation Committee, June 2017, Available at <https://optn.transplant.hrsa.gov/>

<sup>5</sup> *Enhancements to the National Liver Review Board*, OPTN Liver and Intestinal Organ Transplantation Committee, June 2020, Available at <https://optn.transplant.hrsa.gov/>

## Overview of Proposal

### OPTN Policy

The Committee is proposing two changes to OPTN policy language as part of this proposal. The Committee proposes to update the standardized criteria for initial exceptions and extensions of exceptions for candidates with portopulmonary hypertension (POPH) as outlined in *OPTN Policy 9.5.G: Requirements for Portopulmonary Hypertension MELD or PELD Score Exceptions* to provide more appropriate standardized exceptions and better meet current clinical guidelines. The Committee is also proposing changes to the process for reviewing *Post-Transplant Explant Pathology Forms* for candidates with hepatocellular carcinoma (HCC) to allow for more effective oversight of programs submitting HCC exceptions.

#### *Updating Standardized Criteria for Portopulmonary Hypertension Exceptions*

The initial criteria for MELD or PELD exceptions for candidates with portopulmonary hypertension (POPH) were developed in 2006 as a part of the MELD Exception Study Group and Conference (MESSAGE).<sup>6</sup> These criteria were formally adopted into OPTN policy in 2009.<sup>7</sup> Since that time, the criteria for candidates with POPH to be automatically approved for an exception have not substantially changed. The Committee intends to update the criteria for candidates to receive a standardized exception as more recent data and guidelines indicate that the current standardized criteria should be revised. The proposed criteria will ensure that the appropriate candidates are eligible for a standardized exception and reduce the work load of the Adult Other Diagnosis specialty board.

Since 2018, there have been 75 deceased donor transplant recipients with POPH. This represents 0.4% of all transplants in that time frame. The majority of transplant recipients with POPH are age 40-64 years (69.3%) and white (69.3%). The majority of these individuals had public insurance (64.4%). Since 2018, 90.1% of all exception forms for POPH have been approved. From the time that the NLRB was implemented, 85 (63.4%) exception forms for POPH met standard criteria and were automatically approved. Conversely, 48 (35.8%) exception forms did not meet standard criteria and were reviewed by the NLRB and one (0.7%) form met standard criteria and was reviewed by the NLRB. There is not significant variation in the number of candidates with POPH on the liver waiting list between OPTN regions.<sup>8</sup>

In current policy, in order for a candidate to receive a standardized exception for POPH, the transplant program must submit an initial mean pulmonary arterial pressure (MPAP) and pulmonary vascular resistance (PVR). These values must be taken prior to the initiation of any treatment protocols. Transplant programs must also submit documentation that treatment was administered and that the MPAP and PVR values were improved after treatment. The post-treatment MPAP and PVR values must meet specific thresholds in order for the candidate to be eligible for a standardized exception. The Committee is proposing a number of changes related to the pre-treatment and post-treatment measurements and thresholds of MPAP and PVR.

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<sup>6</sup> Michael J. Krowka et al., "Model for End-Stage Liver Disease (MELD) Exception for Portopulmonary Hypertension," *Liver Transplantation* 12, o. S3 (2006), <https://doi.org/10.1002/lt.20975>

<sup>7</sup> OPTN/UNOS Liver and Intestinal Organ Transplantation Committee Report to the Board of Directors, June 2009

<sup>8</sup> OPTN Data accessed on June 16, 2020. Data includes all liver transplant recipients from deceased donors during January 1, 2018 through May 31, 2020; all liver waiting list registrations on the waiting list on June 12, 2020; and all liver MELD or PELD exception forms for POPH submitted during January 1, 2018 through May 31, 2020.

In the current criteria, there are no specific thresholds for the pre-treatment MPAP or PVR values. While the intent of the policy is to document an improvement from the pre-treatment to the post-treatment values, this is not currently required in the system, as any values can be entered for the pre-treatment measurements. To better document an improvement before and after administration of treatment, the Committee is proposing that candidates must have moderate to severe POPH, as defined by MPAP greater than 35 mmHg and a PVR greater than or equal to 240 dynes\*sec/cm<sup>5</sup> prior to administration of any treatment, in order to be eligible for a standardized exception.<sup>9</sup> These criteria, although not explicit in previous policy, meet established clinical guidelines and should not reduce access to transplantation, as patients with less severe POPH are not considered to be candidates for liver transplantation.<sup>10</sup>

The Committee is also proposing changes to the post-treatment MPAP and PVR thresholds. In current policy, a candidate must have a post-treatment MPAP value less than 35 mmHg and a PVR value less than 400 dynes\*sec/cm<sup>5</sup>. The Committee is proposing additional criteria to also allow a candidate to be automatically approved for an exception if treatment results in an MPAP value between 35 mmHg and 45 mmHg with corresponding improvement of PVR to be less than 240 dynes\*sec/cm<sup>5</sup>. **Table 1** below summarizes the proposed changes to the post-treatment hemodynamic criteria:

**Table 1: Post-treatment Hemodynamic Criteria**

Current Post-Treatment Hemodynamic Criteria	Proposed Post-Treatment Hemodynamic Criteria
1. If MPAP is less than 35 mmHg then PVR must be less than 400 dynes*sec/cm <sup>5</sup>	1. If MPAP is less than 35 mmHg then PVR must be less than 400 dynes*sec/cm <sup>5</sup> <b>OR</b> 2. If MPAP is greater than or equal to 35 and less than 45 mmHg then PVR must be less than 240 dynes*sec/cm <sup>5</sup>

Published research suggests the need to update the post-treatment criteria to better capture the candidate population suitable for a standardized exception. MPAP is calculated by the following equation, which includes cardiac output (CO) and pulmonary artery wedge pressure (PAWP):  $MPAP = CO \times PVR + PAWP$ . The current post-treatment criteria do not account for the different causes of an elevated MPAP, which include an increase in PVR associated with pulmonary vasoconstriction and vascular remodeling, as well as patients with a high CO or volume overload.<sup>11</sup> In addition, the current post-treatment threshold of 35 mmHg is based on a single-center observational study and literature review of 43 patients transplanted with POPH prior to 2000 and a multi-center database of 66 POPH patients, 26 of whom were transplanted prior to 2001.<sup>12, 13</sup>

Recent research describes positive post-transplant outcomes in patients with an MPAP greater than 35mmHg caused by an increase in CO and a normal PVR, which commonly occurs in patients who have

<sup>9</sup> Michael J. Krowka et al., "International Liver Transplant Society Practice Guidelines: Diagnosis and Management of Hepatopulmonary Syndrome and Portopulmonary Hypertension," *Transplantation* 100, no. 7 (2016): pp. 1440-1452, <https://doi.org/10.1097/tp.0000000000001229>

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Michael J. Krowka et al., "Pulmonary Hemodynamics and Perioperative Cardiopulmonary-Related Mortality in Patients With Portopulmonary Hypertension Undergoing Liver Transplantation," *Liver Transplantation* 6, no. 4 (2000): pp. 443-450, <https://doi.org/10.1053/jlts.2000.6356>

<sup>13</sup> Michael J. Krowka et al., "Hepatopulmonary Syndrome and Portopulmonary Hypertension: A Report of the Multicenter Liver Transplant Database," *Liver Transplantation* 10, no. 2 (2004): pp. 174-182, <https://doi.org/10.1002/lt.20016>

received treatment.<sup>14, 15</sup> However, no patient with a hyperdynamic circulatory state had an MPAP greater than 45 mmHg.<sup>16</sup> Additional research indicates that PVR, and not MPAP, is a strong predictor of waitlist mortality in transplant candidates with POPH.<sup>17</sup> Finally, only 5.4 percent of hepatologists and pulmonary hypertension physicians who responded to a recent survey felt that an MPAP greater than 35 mmHg should be considered as an absolute contraindication to liver transplantation.<sup>18</sup>

Based on the available evidence, the Committee is proposing an update to the post-treatment criteria to allow for a standardized exception when MPAP is less than 35 mmHg and PVR is less than 400 dynes\*sec/cm<sup>5</sup>, and also when MPAP is greater than or equal to 35 mmHg and less than 45 mmHg and PVR is less than 240 dynes\*sec/cm<sup>5</sup>.

The Committee is also proposing the addition of policy language indicating that the pre-treatment values must be from the same test date. This language already exists for the post-treatment criteria. The proposed language also includes the requirement that the values are obtained via right heart catheterization. This is intended to match the requirements for POPH exception extensions.

The Committee is proposing new policy language requiring transplant programs to indicate that other causes of pulmonary hypertension have been assessed and determined not to be a significant contributing factor to the clinical situation of the candidate. International Liver Transplant Society (ILTS) Practice Guidelines indicate that other causes of pulmonary hypertension may be present in the setting of liver disease and should not be considered as an indication for liver transplantation.<sup>19</sup> Requiring documentation that the candidate does not have another form of pulmonary hypertension will ensure that only those candidates with POPH, who may benefit from liver transplantation, are eligible for a standardized MELD or PELD exception.

This proposed change to policy involves new data collection. Transplant programs will need to indicate on the MELD or PELD exception form for POPH whether or not other causes of pulmonary hypertension have been assessed and determined to not be a significant contributing factor. More details on the proposed data collection can be found in the section titled, “New Data Collection” below.

The Committee is also proposing the addition of language requiring transplant programs to provide documentation of portal hypertension at the time of the initial exception for candidates to be automatically approved for a POPH exception. There is currently no minimum liver disease severity required for a candidate to receive a POPH exception. However, research indicates that severity of liver disease is an important predictive indicator for positive post-transplant outcomes.<sup>20</sup> Patients with less

<sup>14</sup> Erin S. DeMartino et al., “Frequency and Outcomes of Patients With Increased Mean Pulmonary Artery Pressure at the Time of Liver Transplantation,” *Transplantation* 101, no. 1 (2017): pp. 101-106, <https://doi.org/10.1097/tp.0000000000001517>

<sup>15</sup> Corey J. Sadd et al., “Long-Term Outcomes and Survival in Moderate-Severe Portopulmonary Hypertension After Liver Transplant,” *Transplantation* Publish Ahead of Print (2020), <https://doi.org/10.1097/tp.0000000000003248>.

<sup>16</sup> Erin S. DeMartino et al., “Frequency and Outcomes of Patients With Increased Mean Pulmonary Artery Pressure at the Time of Liver Transplantation,” *Transplantation* 101, no. 1 (2017): pp. 101-106, <https://doi.org/10.1097/tp.0000000000001517>

<sup>17</sup> Hilary M. Dubrock et al., “Predictors of Waitlist Mortality in Portopulmonary Hypertension,” *Transplantation* 101, no. 7 (2017): pp. 1609-1615, <https://doi.org/10.1097/tp.0000000000001666>

<sup>18</sup> Hilary M. Dubrock et al., “Portopulmonary Hypertension: a Survey of Practice Patterns and Provider Attitudes,” *Transplantation Direct* 5, no. 6 (2019), <https://doi.org/10.1097/txd.0000000000000900>

<sup>19</sup> Michael J. Krowka et al., “International Liver Transplant Society Practice Guidelines: Diagnosis and Management of Hepatopulmonary Syndrome and Portopulmonary Hypertension,” *Transplantation* 100, no. 7 (2016): pp. 1440-1452, <https://doi.org/10.1097/tp.0000000000001229>.

<sup>20</sup> Maud Reymond et al., “Does Portopulmonary Hypertension Impede Liver Transplantation in Cirrhotic Patients? A French Multicentric Retrospective Study,” *Transplantation* 102, no. 4 (2018): pp. 616-622, <https://doi.org/10.1097/tp.0000000000001981>.

severe liver disease have low mortality and therefore should not be eligible to receive a standardized MELD or PELD exception for POPH.<sup>21</sup> Requiring transplant programs to provide documentation of portal hypertension will ensure that only candidates with significant liver disease automatically receive the additional priority.

This proposed change also involves additional data collection. Transplant programs will need to indicate on the exception form if documentation of portal hypertension at the time of the initial exception is available. More details on the proposed data collection can be found in the section titled, “New Data Collection” below.

In addition to the proposed changes to the criteria for an initial MELD or PELD exception, the Committee also intends to update the exception extension criteria. Currently, in order for a candidate with an approved POPH exception to automatically maintain the exception, the transplant program must provide evidence of a right heart catheterization since the previous exception or extension that confirms the MPAP remained less than 35 mmHg. The proposed language changes the extension criteria to match the post-treatment hemodynamic criteria for an initial exception. Instead of only requiring transplant programs to document that the MPAP remains less than 35 mmHg, the proposed language would require transplant programs to document that the candidate continues to meet the post-treatment MPAP and PVR criteria previously described for an initial exception. This change ensures that the candidates receiving a standardized extension are continuing to meet the necessary clinical indicators.

This change includes additional data collection. More details on the proposed data collection can be found in the section titled, “New Data Collection” below.

The Committee is seeking public comment feedback on the new criteria for standardized POPH exceptions, particularly if the proposed language will better represent the candidate population needing a standardized POPH exception. The Committee is also seeking feedback on if there should be a threshold in policy for the initial transpulmonary gradient to correct for volume overload.

### *HCC: Post-Transplant Explant Pathology Form Review*

*OPTN Policy 9.5.1.i: Initial Assessment and Requirements for HCC Exception Requests* outlines the process for reviewing *Post-Transplant Explant Pathology Forms* for candidates with HCC. The purpose of the review process is to ensure that recipients that are transplanted with the additional priority afforded to HCC candidates had an accurate diagnosis of HCC. There may be cases where a transplant program incorrectly identifies a mass on a liver as HCC, and upon resection, realizes that the original mass was not HCC.

Under the process described in current policy, a transplant program is required to submit the explant pathology form to the OPTN within 60 days after a candidate is transplanted with an HCC exception. If the explant pathology form does not indicate evidence of HCC, then the transplant program must submit additional documentation or imaging studies confirming HCC at the time of transplantation to the OPTN. The Committee will then review a transplant program when 10 percent of cases within a one year period are not supported by the required pathologic documentation or other submitted clinical information.

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<sup>21</sup> Ibid.

However, this process requires UNOS staff to interpret the additional documentation or imaging studies in order to know when the 10 percent threshold is met. UNOS staff do not have the clinical expertise to review such documentation. More so, the process requires transplant programs to submit additional documentation when the explant pathology form indicates no evidence of HCC, regardless of whether the candidate has received treatment of HCC. In many instances, there may be no evidence of HCC if the candidate has received treatment for HCC.

The Committee is proposing two changes to the process for reviewing explant pathology forms. The purpose for the changes is to ensure that the Committee has sufficient and appropriate oversight over transplantation of candidates with HCC so that no program is habitually transplanting candidates without evidence or treatment of HCC.

First, the updated policy language would require transplant programs to submit additional documentation only when the explant pathology form does not show evidence of HCC or treatment of HCC. This change reflects the fact that a liver recipient can have no evidence of HCC at the time of transplant due to previous treatment for HCC. Therefore, this change restricts the submission of additional documentation to only those cases where it is not evident that the candidate had HCC and better limits Committee review to those transplant programs that need additional oversight.<sup>22</sup>

The proposed changes to the policy will also remove the need for UNOS staff to interpret the submitted documentation or imaging studies. Under the proposed process, when an explant pathology form does not indicate evidence or treatment of HCC, the transplant program will still be required to submit additional documentation to the OPTN, but this documentation will only be reviewed by the Committee if 10 percent of explant pathology forms show no evidence or treatment of HCC in a one year period.

The Committee is requesting public comment feedback on the updated review process and if it provides sufficient opportunity for the Committee to review transplant programs that may be inappropriately utilizing the additional priority afforded to HCC candidates. The Committee is also seeking input on if the updated policy should state that the Committee has the ability to refer transplant programs to the Membership and Professional Standards Committee (MPSC).

## Operational Guidelines

The Committee is proposing two changes to the *National Liver Review Board Operational Guidelines*. The operational guidelines outline how the NLRB functions and provides additional detail on the operation of the NLRB.<sup>23</sup>

### *Pediatric Appeals Review Team (ART)*

Under the current appeal process, a transplant program can appeal a denied case, first to the same group of reviewers, then to the ART, and finally to the Committee. The current ART consists of nine NLRB members, who are assigned to participate on the ART for a one month term. Of the nine NLRB members on each ART, two are from the NLRB Pediatric specialty board. The ART reviews cases via teleconference at a set day and time each week. Representatives from the petitioning transplant

<sup>22</sup> Since 2012, 20 transplant programs have had at least 10% of explant pathology forms in a one year period with no evidence of HCC and no treatment of HCC. However, in the same time period, 212 transplant programs have had at least 10% of explant pathology forms in a one year period with no evidence of HCC.

<sup>23</sup> Current operational guidelines are available at <https://optn.transplant.hrsa.gov/>



program have the ability to join the ART calls and present the case on behalf of the candidate. Five members of the ART must participate on each call and the appeal must achieve a majority plus one affirmative votes in order to be approved.

The Committee is proposing the creation of a pediatric-specific ART to review all cases appealed from the Pediatric specialty board. The pediatric ART would consist only of NLRB reviewers from the Pediatric specialty board, allowing for those individuals with more specific pediatric expertise to review the cases for pediatric candidates.<sup>24</sup>

The creation of a pediatric ART is in response to feedback from the transplant community and Committee members' own experience on the ART. Transplant programs presenting pediatric cases to the ART often felt that the ART, as currently constructed, did not have sufficient pediatric expertise to provide appropriate case review. Similarly, ART members without pediatric expertise frequently noted that they did not have sufficient expertise to review pediatric cases. The Committee feels that establishing a pediatric ART will better align the expertise of ART reviewers with the assigned cases and provide for more equitable case review.

The creation of a pediatric ART will create additional responsibility for NLRB reviewers, especially on the NLRB Pediatric specialty board. The current guidelines state that NLRB reviewers will serve no more than one month on the ART each year. However, due to the number of members on the Pediatric specialty board, these reviewers will need to serve for multiple months on the Pediatric ART. There are typically fewer ART appeals from the NLRB Pediatric specialty board, so while pediatric ART reviewers will serve longer terms, it is unlikely that they will be responsible for reviewing more cases. In approximately the first six months of the NLRB, there were 15 ART cases from the Pediatric specialty board out of 131 total ART cases. Based on this information, the pediatric ART should expect to review cases on a less frequent basis, although they will still have calls scheduled every week. The calls will be cancelled if there are no cases to review.

The Committee is seeking public feedback on the proposed creation of a pediatric ART and are particularly interested in feedback from individuals who participate on the Pediatric specialty board.

### *ART Leader*

In addition to creating a Pediatric ART, the Committee is also proposing the addition of an ART leader. Throughout the first year of the NLRB, the Liver Committee has found it difficult to evaluate the ART due to the nature of the ART calls. Unlike reviews conducted electronically, ART reviewers provide feedback on cases via teleconference and such feedback is often difficult to evaluate. Votes and comments from reviewers are documented by UNOS staff but this documentation does not provide detail on the conversation during the call. Committee members who served on the ART also felt that the calls would benefit from having an individual designated to help lead the calls and facilitate discussion.

To address these concerns, the Committee is proposing adding a Committee member to each ART. The Committee also expects these Committee members to help guide and facilitate discussion on the ART calls. The intent of the Committee is to allow for more visibility into the ART review process and help guide the conversation to provide efficient case review and constructive feedback.

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<sup>24</sup> Under the current system, if a pediatric candidate has HCC, the case is reviewed by the Pediatric specialty board. To maintain a consistent process, these cases would be reviewed by the pediatric ART as well.

The plan is to assign one Committee member who serves as an NLRB reviewer to be the ART leader for each month. The ART leader will be a voting member of the ART. The Committee does not intend to have an ART leader for the pediatric ART, as there are not enough Committee members with pediatric experience to serve in the role for each ART.

There is nothing in the current guidelines explicitly prohibiting the addition of a Committee member to each ART, so the proposed changes to the guidelines in this regard are minimal. The Committee is seeking public feedback on the concept of an ART leader and the responsibilities of that individual. The Committee is also seeking public input on adding an ART leader to the pediatric ART and who those individuals should be, given the constitution of the Committee.

## Guidance Documents

Each of the three specialty review boards (Pediatric, Adult Other Diagnosis, and Adult HCC) has specific, clinical guidance to assist reviewers in evaluating exception requests for the corresponding candidate population. The guidance documents are intended to provide guidance to transplant programs when submitting exception cases and to review board members when reviewing exception cases. The guidance documents help ensure that cases contain the necessary clinical information and that they are reviewed consistently and equitably. The Committee is proposing changes to the guidance for polycystic liver disease (PLD), which is in the guidance document for the Adult Other Diagnosis specialty review board.

The current guidance for PLD states that candidates who meet the provided criteria should be considered for a MELD exception such that transplantation is expected within the year. It is difficult for transplant programs to know what exception score to request so that transplantation is expected within the year. More so, reviewers are unable to know if the score requested will allow the candidate to be transplanted within the year, as they do not know any identifying information about the candidate, including the location of the transplant program at which they are registered. This score recommendation has caused confusion for both transplant programs and reviewers. Therefore the Committee intends to change the score recommendation to be more in line with other areas of guidance by recommending that candidates meeting the provided criteria should be considered for an exception score similar to other policy assigned scores. The Committee is seeking feedback if this is the best language to use for the score recommendation.

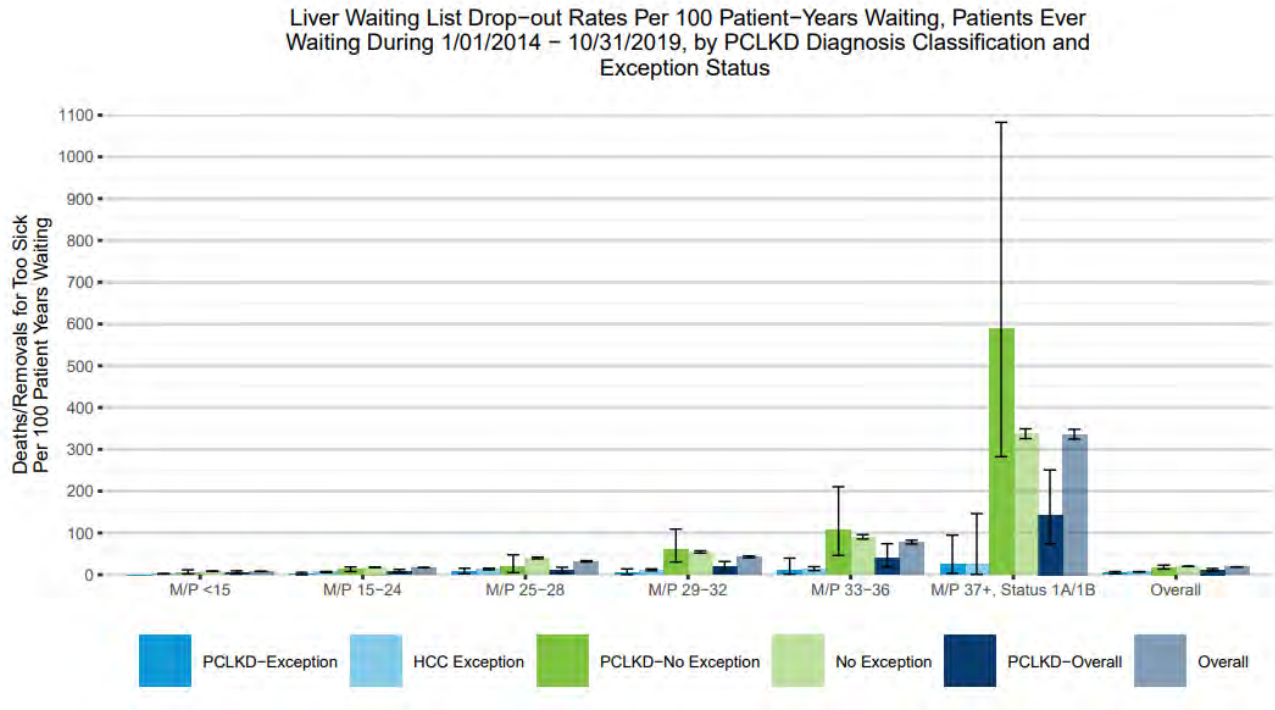
The Committee also intends to add guidance for candidates with PLD who require kidney transplantation. The additional guidance states that candidates meeting the criteria for a PLD exception who also meet the medical eligibility criteria for simultaneous liver-kidney allocation as described in *OPTN Policy 9.9: Liver-Kidney Allocation* and are registered on the kidney waitlist should be considered for a MELD exception similar to hyperoxaluria in OPTN policy. This score recommendation is higher than the score recommendation for candidates with PLD who do not require a kidney. The Committee decided to include a higher score recommendation for candidates also requiring a kidney for two reasons. First, the Committee felt that it was appropriate to provide the higher score recommendation to give these candidates a greater likelihood of receiving a liver and a kidney from the same donor. Such a donor would likely be considered high-quality and a high MELD score would be needed to receive an offer for a high-quality donor.<sup>25</sup> In addition, candidates with polycystic liver-kidney disease (PCLKD),

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<sup>25</sup> See OPTN Liver and Intestinal Organ Transplantation Committee meeting summary, January 9, 2020. Available at

which are those candidates with PLD also requiring a kidney, who do not have an exception, have higher waiting list drop-out rates than candidates with similar MELD or PELD scores with an exception. This is specifically true for candidates with a MELD or PELD score higher than 29.<sup>26</sup>

**Figure 1: PCLKD Wait List Drop Out**



In addition, the Committee intends to update the list of comorbidities considered to be appropriate indications for a MELD exception. In the current guidance for PLD, it states that candidates with severe symptoms and either hepatic decompensation, concurrent hemodialysis, or GFR less than 20 ml/min should be considered for a MELD exception. The Committee is proposing that patients with a prior kidney transplant or with moderate to severe protein calorie malnutrition should also be considered for a MELD exception.

The Committee felt that the current guidance inadvertently penalized candidates who previously received a kidney transplant but not a liver graft. These candidates would not have a GFR less than 20 ml/min due to the kidney transplant and would not qualify given the current criteria. However, a candidate needing a kidney and a liver should not lose prioritization for the liver if they previously received only a kidney.<sup>27</sup> The Committee intends to include candidates who have moderate to severe

<https://optn.transplant.hrsa.gov/>

<sup>26</sup> OPTN Descriptive Data Request. "Polycystic Liver-Kidney Disease Patients" Prepared for the NLRB Subcommittee Meeting, January 9, 2020.

<sup>27</sup> See OPTN Liver and Intestinal Organ Transplantation Committee meeting summary, November 14, 2019. Available at <https://optn.transplant.hrsa.gov/>

protein calorie malnutrition in the list of comorbidities. Often, candidates with PLD have large livers, which restricts their ability to consume nutrition and increases their urgency for transplant.<sup>28, 29</sup>

The Committee is seeking public feedback regarding the updated guidance and proposed score recommendations.

## NOTA and Final Rule Analysis

The Committee submits the proposed changes to liver allocation policy (*Policy 9.5.G: Requirements for Portopulmonary Hypertension MELD or PELD Score Exceptions*) for Board consideration under the authority of the OPTN Final Rule, which states “The OPTN Board of Directors shall be responsible for developing...policies for the equitable allocation for cadaveric organs.”<sup>30</sup> The Final Rule requires that when developing policies for the equitable allocation of cadaveric organs, such policies must be developed “in accordance with §121.8,” which requires that allocation policies “(1) Shall be based on sound medical judgment; (2) Shall seek to achieve the best use of donated organs; (3) Shall preserve the ability of a transplant program to decline an offer of an organ or not to use the organ for the potential recipient in accordance with §121.7(b)(4)(d) and (e); (4) Shall be specific for each organ type or combination of organ types to be transplanted into a transplant candidate; (5) Shall be designed to avoid wasting organs, to avoid futile transplants, to promote patient access to transplantation, and to promote the efficient management of organ placement;...(8) Shall not be based on the candidate's place of residence or place of listing, except to the extent required by paragraphs (a)(1)-(5) of this section.” This proposal:

- **Is based on sound medical judgment**<sup>31</sup> because it is an evidenced-based change relying on the following evidence:
  - Literature and medical judgement showing that standardized POPH criteria should be updated to match recent clinical guidelines
- **Seeks to achieve the best use of donated organs**<sup>32</sup> by ensuring organs are allocated and transplanted according to medical urgency.
  - This proposal seeks to achieve the best use of donated organs by ensuring that only those candidates meeting established clinical criteria are able to receive standardized POPH exceptions.
- **Is designed to...promote patient access to transplantation**<sup>33</sup> by giving similarly situated candidates equitable opportunities to receive an organ offer.
  - This proposal is designed to promote patient access to transplantation by allowing candidates meeting established clinical criteria to be eligible for a standardized POPH exception.

This proposal is not based on the candidate’s place of residence or place of listing. This proposal also preserves the ability of a transplant program to decline an offer or not use the organ for a potential

<sup>28</sup> Joost P.h. Drenth et al., “Medical and Surgical Treatment Options for Polycystic Liver disease1,” *Hepatology* 52, no. 6 (2010): pp. 2223-2230, <https://doi.org/10.1002/hep.24036>.

<sup>29</sup> Hyunjin Ryu et al., “Total Kidney and Liver Volume Is a Major Risk Factor for Malnutrition in Ambulatory Patients with Autosomal Dominant Polycystic Kidney Disease,” *BMC Nephrology* 18, no. 1 (2017), <https://doi.org/10.1186/s12882-016-0434-0>.

<sup>30</sup> 42 CFR §121.4(a).

<sup>31</sup> 42 CFR §121.8(a)(1).

<sup>32</sup> 42 CFR §121.8(a)(2).

<sup>33</sup> *Id.*

recipient,<sup>34</sup> and it is specific to an organ type, in this case livers.<sup>35</sup> The Committee intends to consider whether any transition measures are necessary for those candidates that currently qualify for the POPH exception prior to Board review of the proposal.

Although the proposal outlined in this briefing paper addresses certain aspects of the Final Rule listed above, the Committee does not expect impacts on the following aspects of the Final Rule:

- Shall be designed to avoid wasting organs, to avoid futile transplants, ... and to promote the efficient management of organ placement;

Additionally, the OPTN issues the *Guidance to Liver Transplant Programs and the National Liver Review Board for Adult MELD Exception Review* for the operation of the OPTN.<sup>36</sup> This guidance will support the operation of the NLRB by assisting the reviewers with evaluating exception requests. The OPTN Final Rule requires the Board to establish performance goals for allocation policies, including “reducing inter-transplant program variance.”<sup>37</sup> This guidance document will assist in reducing inter-transplant program variance by facilitating more consistent review of exception cases.

## Implementation Considerations

### Member and OPTN Operations

The proposed changes will require programming in UNet<sup>SM</sup>, additional education, and logistical support from the OPTN.

The changes to the standardized criteria for POPH involve new data collection which is described in more detail in the “New Data Collection” section.

#### *Operations affecting Histocompatibility Laboratories*

This proposal does not impact the operations of histocompatibility laboratories.

#### *Operations affecting Organ Procurement Organizations*

This proposal does not impact the operations of organ procurement organizations.

#### *Operations affecting Transplant Hospitals*

The proposed changes to the standardized criteria for POPH exceptions involve new data collection, and therefore will require additional member action.

Two new fields will be added to the initial exception form for POPH, as well as new data validation and label changes. Three new fields will be added to the exception extension form for POPH and one field will be removed. Transplant programs will need to be familiar with the new data collection and develop processes to provide the necessary data.

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<sup>34</sup> 42 CFR §121.8(a)(3).

<sup>35</sup> 42 CFR §121.8(a)(4).

<sup>36</sup> 2019 OPTN Contract Task 3.2.4: Development, revision, maintenance, of OPTN Bylaws, policies, standards and guidelines for the operation of the OPTN.

<sup>37</sup> 42 C.F.R. §121.8(b)(4)

In addition to the new data collection, the proposed changes to the explant pathology form review process will require members to submit additional documentation or imaging studies less frequently, as documentation will only be submitted when there is no evidence or treatment of HCC.

Transplant programs will also need to be aware of the pediatric ART and be prepared to speak to a more pediatric-focused audience when appealing cases to the pediatric ART.

Similarly, transplant programs will need to be familiar with the updated guidance for PLD.

### *Operations affecting the OPTN*

OPTN implementation actions for the different components of this proposal are described in order below.

- **Exception form for POPH:** The proposed changes to the standardized criteria for POPH will require programming in UNet. The OPTN will need to alter the MELD or PELD initial exception form for POPH to match the changes to policy. The new pre-treatment MPAP and PVR thresholds will need to be programmed, as well as changing a current data label from “Test Date” to “Heart Catheterization Date.” The data validation for the post-treatment MPAP and PVR values will need to be updated to allow for the new post-treatment criteria. Two new fields will be added to the form to allow transplant programs to document that other causes of pulmonary hypertension have been assessed and determined to not be a significant contributing factor and the presence of portal hypertension at the time of initial exception.
- **Exception Extension form for POPH:** The OPTN will also need to update the POPH exception extension form to meet the updated criteria in policy. One field, Peak mean pulmonary arterial pressure level in the past 90 days, will be removed. Three new fields, MPAP, pulmonary artery wedge pressure (PAWP) and cardiac output will be added to the extension form. These fields are identical to the initial exception form and are used to calculate PVR.
- **Explant Pathology Review:** The OPTN will also need to update the process for reviewing explant pathology forms to match the new policy language.
- **Pediatric ART:** The pediatric ART will be programmed into UNet and OPTN staff will be responsible for managing the pediatric ART roster and facilitating the ART meetings.
- **Communication and Education:** The OPTN will also be responsible for communicating the changes to members and updating educational resources.

## Potential Impact on Select Patient Populations

This proposal will have an impact on a number of select patient populations.

Candidates with POPH will be impacted by the proposed changes to the standardized criteria for POPH exceptions. It is important to note that the updated criteria will not require any new or additional testing or procedures for these candidates. The Committee does not anticipate any candidates who

would have been eligible for a standardized POPH exception to no longer be able to receive a standardized exception.

The new pre-treatment criteria provide specific thresholds for the MPAP and PVR values to ensure that candidate's receiving an exception have moderate to severe POPH, but the Committee does not anticipate that programs would have applied for an exception for a candidate with mild POPH, despite the lack of specific criteria in current policy. Similarly, the Committee expects that requiring transplant programs to provide evidence that other causes of pulmonary hypertension have been assessed and determined not to be a significant contributing factor and evidence of portal hypertension at the time of initial exception should not preclude any candidate who would have previously been eligible for an exception from still being eligible. It is unlikely that a transplant program would have applied for a POPH exception for a candidate without meeting these criteria. These new requirements follow established standards of care and should be documented in the medical record already.<sup>38</sup>

The updated post-treatment and extension criteria should allow for more candidates to be able to receive a standardized exception as candidates with an MPAP greater than 35 will now be eligible for a standardized exception if the PVR is less than 240 dynes\*sec/cm<sup>5</sup>.<sup>39</sup>

The creation of a pediatric ART will allow for pediatric appeals to be reviewed by individuals with more pediatric expertise. This change will provide more equitable review of pediatric ART cases.

Transplant programs requesting an exception for candidates with PLD will have clearer guidance on an appropriate score to request for their candidate. Also, the addition of specific guidance for candidates with PLD needing a kidney will make it evident that these candidates should be considered for an exception. In addition, the updated language provides guidance for candidates who received a prior kidney transplant or have moderate to severe protein calorie malnutrition. These additions will allow more candidates with PLD to be appropriately considered for a MELD exception.

There is no anticipated negative impact for any patient group.

## New Data Collection

The Committee submits the proposal to collect additional data under the authority of the OPTN Final Rule, which states the OPTN shall "maintain records of all transplant candidates, all organ donors and all transplant recipients"<sup>40</sup> and shall "...receive...such records and information electronically..."<sup>41</sup> The new data collection aligns with the OPTN Data Collection Principle to develop transplant, donation, and allocation policies.<sup>42</sup> The proposed new data collection is not available through other means for the relevant population of candidates and the OPTN is the appropriate body to collect such information. The Committee consulted with the OPTN Data Advisory Committee (DAC) and UNOS Data Governance staff to receive feedback and further refine the proposed data collection. The DAC reviewed the proposed data elements and data definitions and had no additional feedback. The Committee utilized a

<sup>38</sup> See OPTN Liver and Intestinal Organ Transplantation Committee meeting summary, April 14, 2020. Available at <https://optn.transplant.hrsa.gov/>

<sup>39</sup> Ibid.

<sup>40</sup> 42 CFR §121.11(a)(1)(ii)

<sup>41</sup> 42 CFR §121.11(a)(1)(iii)

<sup>42</sup> OPTN Data Collection Principles were approved by the OPTN Board of Directors in 2006.

data quality checklist to ensure that the proposed data elements are relevant, available, reliable, usable and do not pose an unrealistic administrative burden.

All changes to data collection as part of this proposal are within Waitlist<sup>SM</sup>. None of the new fields will be required. If a transplant program does not provide a response for one of the new fields, then the candidate will not be eligible to receive the standardized exception or extension and will have their case reviewed by the NLRB. This matches the fields currently on the forms.

Two new data elements will be added to the initial exception form for POPH to match the proposed changes to policy. These two new data elements are included in the **Table 2** below.

**Table 2: New Data Collection: Initial POPH Exception**

Corresponding Policy Language/Criteria	Data Element	Response Options	Data Definition
Other causes of pulmonary hypertension have been assessed and determined to not be a significant contributing factor	Have other causes of pulmonary hypertension been assessed and determined not to be a significant contributing factor?	Radio buttons: <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>	Clinical guidelines for the treatment of POPH with liver transplantation indicate that other causes of pulmonary hypertension should be excluded. If other causes of pulmonary hypertension have been assessed and determined to not be a significant contributing factor, select Yes. If not, select No. Other causes of pulmonary hypertension include but are not limited to: idiopathic pulmonary hypertension, vasculitis (lupus), chronic pulmonary embolism, sickle cell anemia, and left heart failure.
Documentation of Portal Hypertension at the time of initial exception	Is there documentation of portal hypertension at the time of the initial exception?	Radio buttons: <ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>	If documentation of portal hypertension at the time of initial exception is available, select Yes. If not, select, No.

The Committee recognizes that the introduction of these data elements increases the data burden on transplant programs submitting POPH exceptions. However, the intent of the data collection is to ensure that only those candidates needing the additional MELD or PELD points are automatically approved for the exception and felt that the additional data burden was justified by this intent. The Committee agreed that responses to the data elements would be available for all relevant candidates due to the normal transplant evaluation process and no additional tests would be needed. The Committee attempted to make the data elements as simple and intuitive as possible.

In their deliberation, the Committee noted that all candidates being considered for a POPH exception are evaluated by a pulmonologist or cardiologist to ensure that there are no other causes of pulmonary hypertension. This evaluation is documented in the candidate’s medical record. A transplant coordinator completing the exception form will need to find this information in the candidate’s medical record or consult with the attending hepatologist.

Similarly, the Committee noted that documentation of portal hypertension should be available for any candidate with POPH needing a MELD or PELD exception. This information will be available in the candidate’s medical record. A transplant coordinator completing the exception form will need to find this information in the candidate’s medical record or consult with the attending hepatologist.



The Committee is seeking public feedback on the proposed data collection, particularly if the data definitions are helpful and clear.

In addition to the new data elements on the initial exception form, three new elements will be added to the exception extension form and one element will be removed. All of three of the new data elements are identical to fields on the initial exception form. The intent of the Committee was to match the post-treatment data collection and MPAP and PVR thresholds on the initial exception form. The three new data elements on the exception extension form are included in the **Table 3** below.

**Table 3: New Data Collection: POPH Exception Extensions**

Corresponding Policy Language/Criteria	Data Element	Response Options	Data Definition
MPAP	Mean Pulmonary Arterial Pressure (MPAP)	Numerical Value (mmHg)	Enter the mean pulmonary arterial pressure in mmHg. The initial mean pulmonary arterial pressure must be between 0 and 150.0 mmHg.
Value is used to calculate PVR	Pulmonary Artery Wedge Pressure (PAWP)	Numerical Value (mmHg)	Enter the pulmonary artery wedge pressure in mmHg. The initial pulmonary artery wedge pressure must be between 0 and 50.0 mmHg.
Value is used to calculate PVR	Cardiac Output	Numerical value (L/min)	Enter the cardiac output in L/min. The initial cardiac output must be between 0.20 and 15.00 L/min.

All of the values are obtained via right heart catheterization, which is already required as part of the extension criteria. Therefore, while there is new data collection involved, no new tests will be required. Transplant programs will just need to provide more information from the right heart catheterization. The current exception extension form has a field for the date that the right heart catheterization is completed. This field will be used to ensure that the values listed above are collected on the same date, as outlined in the proposed policy.

The field “Peak mean pulmonary arterial pressure (MPAP) level in the past 90 days” is being removed from the exception extension form. This field is no longer relevant with the incorporation of the new hemodynamic criteria and addition of the data elements described above.

The Committee is also seeking feedback on if the minimum cardiac output should stay at 0.20 L/min or if it should be 0.0 L/min and if the maximum value should be higher.

### *New Data Validation*

The proposed changes to policy will necessitate the incorporation of new data validation for the hemodynamic lab values provided both before and after treatment on the initial exception form and on the exception extension form. Transplant programs will need to be familiar with the new data validation for the hemodynamic lab values.

## *Data Label Changes*

On the current exception form, transplant programs must provide a test date documenting when the lab values were collected. In accordance with the policy change, the current test date field will now be labelled, "Heart Catheterization Date." There is no difference in the data that transplant programs must provide. However, they should be familiar with the updated data label.

## Projected Fiscal Impact

### *Projected Impact on Histocompatibility Laboratories*

There is no expected fiscal impact for histocompatibility laboratories.

### *Projected Impact on Organ Procurement Organizations*

There is no expected fiscal impact for OPOs.

### *Projected Impact on Transplant Hospitals*

There is minimal expected impact on transplant hospitals. There is no expected fiscal impact on OPOs or histocompatibility laboratories.

This proposal does not require any new testing and only requires transplant hospital staff to become familiar with the minor changes to the exception submission form as well as the guidance document. Staff time for additional data entry for a very small cohort of patients may increase.

### *Projected Impact on the OPTN*

Preliminary estimates indicate that this would be a large effort, as over 100 hours may be needed for IT programming, communication, and ongoing monitoring. UNOS staff will also be responsible for coordinating the pediatric ART call on an ongoing basis.

## Post-implementation Monitoring

### Member Compliance

The Final Rule requires that allocation policies "include appropriate procedures to promote and review compliance including, to the extent appropriate, prospective and retrospective reviews of each transplant program's application of the policies to patients listed or proposed to be listed at the program."<sup>43</sup> The proposed language will not change the current routine monitoring of OPTN members. Site surveyors will continue to review a sample of medical records, and any material incorporated into the medical record by reference, for documentation that data reported through UNet is consistent with source documentation including all qualifying criteria used for standardized exceptions reported on the MELD or PELD exception or exception extension form.

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<sup>43</sup> 42 CFR §121.8(a)(7).

This proposal includes language that will ensure that the OPTN has sufficient and appropriate oversight over transplantation of candidates with HCC so that no program is consistently transplanting candidates without sufficient documentation of HCC.

## Policy Evaluation

The Final Rule requires that allocation policies “be reviewed periodically and revised as appropriate.”<sup>44</sup>

In addition to those monitoring reports and items previously enumerated in post-implementation evaluation plans related to the NLRB<sup>45</sup>, the UNOS Research Department will analyze relevant outputs in pre vs. post analyses for the additional enhancements. Such analyses will continue the cadence of previously laid out evaluation plans (up to 36 months post-implementation of the NLRB), or longer if requested by the Committee.

Relevant analyses:

- Number of exception cases for portopulmonary hypertension
  - Overall, by automatic system approval/NLRB board review, case outcome, and by application type
- Distribution of automatic approval turn-down reasons for portopulmonary hypertension cases (reasons criteria was not met)
- Number of transplant recipients with portopulmonary hypertension exception
- Number of pediatric Appeals Review Team cases
  - Overall, by case outcome, and by diagnosis
- Number of exception cases for polycystic liver disease/polycystic liver and kidney disease
  - Overall, by case outcome, by application type, and by liver alone/liver-kidney registration status
- Number of transplant recipients with polycystic liver disease/polycystic liver and kidney disease

## Conclusion

The NLRB has been in place for over a year and this proposal is the second round of improvements to the new exception review process. The proposed updates to the standardized criteria for POPH exception match updated clinical experience and ensure that the appropriate candidates are eligible for a standardized exception. The changes to the review process for explant pathology forms provides more appropriate oversight of programs submitting HCC exceptions. The creation of the pediatric ART and the use of an ART leader will improve the equity and efficiency with which ART appeals are reviewed. And finally, the changes to guidance for PLD will ensure that these candidates are appropriately considered for a MELD exception.

Together, these changes will improve the NLRB and the overall liver allocation system.

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<sup>44</sup> 42 CFR §121.8(a)(6).

<sup>45</sup> *Proposal to Establish a National Liver Review Board*, OPTN Liver and Intestinal Organ Transplantation Committee, June 2017, Available at <https://optn.transplant.hrsa.gov/>

The Committee is seeking public feedback on all of the proposed changes but specifically:

1. Updated criteria for standardized POPH exceptions, especially the new data collection, data definitions, and if a threshold for the initial transpulmonary gradient to correct for volume overload is needed
2. If the updated policy language for reviewing *Post-Transplant Explant Pathology Forms* should state that the Committee has the ability to refer transplant programs to the MPSC
3. Specific responsibilities of the ART leader and if there should be an ART leader for the pediatric ART
4. If the updated guidance and score recommendation for PLD are clear and sufficient

## Policy, Guidelines, and Guidance Language

Proposed new language is underlined (example) and language that is proposed for removal is struck through (~~example~~). Heading numbers, table and figure captions, and cross-references affected by the numbering of these policies will be updated as necessary.

### 9.5.G Requirements for Portopulmonary Hypertension MELD or PELD Score Exceptions

A candidate will receive a MELD or PELD score exception for portopulmonary hypertension if the transplant hospital submits evidence of *all* of the following:

1. Document via heart catheterization initial mean pulmonary arterial pressure (MPAP) level greater than or equal to 35 mmHg and initial pulmonary vascular resistance (PVR) level greater than or equal to 240 dynes\*sec/cm<sup>5</sup> (or greater than or equal to 3 Wood units (WU)). These values must be from the same test date.
- ~~2. Initial pulmonary vascular resistance (PVR) level~~
2. Other causes of pulmonary hypertension have been assessed and determined to not be a significant contributing factor
3. Initial transpulmonary gradient to correct for volume overload
4. Documentation of treatment
- ~~5. Post treatment MPAP less than 35 mmHg within 90 days prior to submission of the initial exception~~
- ~~6. Post treatment PVR less than 400 dynes\*sec/cm<sup>5</sup>, or less than 5.1 Wood units (WU), on the same test date as post treatment MPAP less than 35 mmHg~~
5. Document via heart catheterization within 90 days prior to submission of the initial exception either of the following:
  - Post-treatment MPAP less than 35 mmHg and post-treatment PVR less than 400 dynes\*sec/cm<sup>5</sup> (or less than 5 Wood units (WU)). These values must be from the same test date.
  - Post-treatment MPAP greater than or equal to 35 mmHg and less than 45 mmHg and post-treatment PVR less than 240 dynes\*sec/cm<sup>5</sup> (or less than 3 Wood units (WU)). These values must be from the same test date.
6. Documentation of portal hypertension at the time of initial exception

A candidate who meets the requirements for a standardized MELD or PELD score exception will be assigned a score according to *Table 9-7* below.

**Table 9-7: Portopulmonary Hypertension Exception Scores**

Age	Age at registration	Score
At least 18 years old	At least 18 years old	3 points below MMaT
At least 12 years old	Less than 18 years old	Equal to MMaT
Less than 12 years old	Less than 12 years old	Equal to MPaT

In order to be approved for an extension of this MELD or PELD score exception, transplant hospitals must submit an exception extension request according to *Policy 9.4.C: MELD or PELD Score Exception Extensions* with evidence of a heart catheterization since the last exception or extension request that confirms ~~the mean pulmonary arterial pressure (MPAP) remains less than 35 mmHg.~~ either of the following:

- MPAP less than 35 mmHg and post-treatment PVR less than 400 dynes\*sec/cm<sup>5</sup> (or less than 5 Wood units (WU)). These values must be from the same test date.
- MPAP greater than or equal to 35 mmHg and less than 45 mmHg and post-treatment PVR less than 240 dynes\*sec/cm<sup>5</sup> (or less than 3 Wood units (WU)). These values must be from the same test date.

### 9.5.I.i Initial Assessment and Requirements for HCC Exception Requests

Prior to applying for a standardized MELD or PELD exception, the candidate must undergo a thorough assessment that includes *all* of the following:

1. An evaluation of the number and size of lesions before local-regional therapy that meet Class 5 criteria using a dynamic contrast enhanced computed tomography (CT) or magnetic resonance imaging (MRI)
2. A CT of the chest to rule out metastatic disease
3. A CT or MRI to rule out any other sites of extrahepatic spread or macrovascular involvement
4. An indication that the candidate is not eligible for resection
5. An indication whether the candidate has undergone local-regional therapy
6. The candidate's alpha-fetoprotein (AFP) level

The transplant hospital must maintain documentation of the radiologic images and assessments of all OPTN Class 5 lesions in the candidate's medical record. If growth criteria are used to classify a lesion as HCC, the radiology report must contain the prior and current dates of imaging, type of imaging, and measurements of the lesion.

For those candidates who receive a liver transplant while receiving additional priority under the HCC exception criteria, the transplant hospital must submit the *Post-Transplant Explant Pathology Form* to the OPTN Contractor within 60 days of transplant. If the pathology report does not show evidence or treatment of HCC, the transplant hospital must also submit documentation or imaging studies confirming HCC at the time of assignment. The Liver and Intestinal Organ Transplantation Committee will review a transplant hospital when more than 10 percent of the HCC cases in a one-year period are not supported by the required pathologic confirmation or submission of clinical information. *Post-Transplant Explant Pathology Forms* submitted in a one year period do not show evidence or treatment of HCC.

# National Liver Review Board Operational Guidelines

## 1. Overview

The purpose of the National Liver Review Board (NLRB) is to provide fair, equitable, and prompt peer review of exceptional candidates whose medical urgency is not accurately reflected by the calculated MELD/PELD score. The NLRB will base decisions on policy, the guidance documents, and in cases which lack specific guidance, the medical urgency of the candidate as compared to other candidates with the same MELD or PELD score.

The NLRB is comprised of specialty boards, including:

- Adult Hepatocellular Carcinoma (HCC)
- Adult Other Diagnosis
- Pediatrics, which reviews requests made on behalf of any candidate registered prior to turning 18 years old and adults with certain pediatric diagnoses

The immediate past-Chair of the Liver and Intestinal Organ Transplantation Committee serves as the Chair of the NLRB for a two year term.

## 2. Representation

Every active liver transplant program may appoint a representative and alternate to each of the adult specialty boards. A liver transplant program with an active pediatric component may appoint a representative and alternate to the pediatric specialty board. Individuals may serve on more than one specialty board at the same time. Transplant programs are encouraged to appoint representatives from both hepatology and surgery who have active transplant experience. Liver transplant programs are not required to provide a representative to the NLRB.

Representatives and alternates serve a one year term. A liver transplant program may appoint the same representative or alternate to serve consecutive terms.

If a transplant hospital withdraws or inactivates its liver program, it may not participate in the NLRB. However, the transplant hospital's participation may resume once it has reactivated its liver program.

## 3. Representative and Alternate Responsibilities

Prior to each term of service, representatives and alternates are required to sign the *UNOS Confidentiality and Conflict of Interest Statement* and complete orientation training.

Representatives must vote within 7 days on all exception requests, exception extension requests, and appeals. A representative will receive an e-mail reminder after day 3 and day 5 if the representative has an outstanding vote that must be completed. On the eighth day, if the vote has not been completed, then the request will be randomly reassigned to another representative. The original reviewer will receive a notification that the request has been reassigned.

The representative must notify UNOS in UNet<sup>SM</sup> of an absence, during which the alternate will fulfill the responsibilities of the representative.

46  
47 If a representative or alternate does not vote on an open request within 7 days on more than 5% of the  
48 cases assigned to that reviewer within a 6 month period, the Chair may remove the individual from the  
49 NLRB. If a representative or alternate does not vote because a case is approved and closed before the 7  
50 day timeframe expires, it is not considered a failure to vote. A representative or alternate who has been  
51 removed for failure to perform the duties required is not eligible to serve again for 3 years.

52  
53 If a transplant program exhibits a pattern of non-responsiveness, as evidenced by the removal of two  
54 members from the NLRB, the Chair may suspend the program's participation for a period of three months  
55 after notifying the program director. Further non-compliance with the review board process may result in  
56 cessation of the program's representation on the NLRB until such a time as the transplant hospital can  
57 satisfactorily assure the Chair that it has addressed the causes of non-compliance.

#### 58 59 **4. Voting Procedure**

60  
61 An exception request is randomly assigned to five representatives of the appropriate specialty board. A  
62 representative may vote to approve or deny the request, or ask that the request be reassigned. The  
63 request must achieve four out of five affirmative votes in order to be approved. If the request does not  
64 achieve the necessary four affirmative votes, it is denied.

65  
66 As part of the MELD/PELD Exception program in UNet<sup>SM</sup>, NLRB members are notified of new cases by  
67 email.

68  
69 Voting on an exception request is closed either at the end of the appeal period or when no additional  
70 votes will change the outcome of the vote, whichever occurs earlier. Members no longer have the ability  
71 to vote once a request is closed.

#### 72 73 **5. Appeal Process**

74  
75 A liver program may appeal the NLRB's decision to deny an exception request. Patients are not eligible to  
76 appeal exception requests. All reviewer comments are available in UNet<sup>SM</sup>. The NLRB advises programs to  
77 respond to the comments of dissenting reviewers in the appeal.

78  
79 The same five members that reviewed the original request will review the appeal. The appeal must  
80 achieve four out of five affirmative votes in order to be approved. If the appeal does not achieve the  
81 necessary four affirmative votes, it is denied. If the appeal is denied, the liver program may request a  
82 conference call with the Appeals Review Team (ART).

83  
84 If the ART denies the request, the liver program may initiate a final appeal to the Liver and Intestinal Organ  
85 Transplantation Committee (Liver Committee). Referral of cases to the Liver Committee will include  
86 information about the number of previous referrals from that program and the outcome of those  
87 referrals.

#### 88 89 **6. Appeals Review Team (ART)**

90  
91 At the beginning of each new service term, nine NLRB members from the Adult Other Diagnosis and Adult  
92 HCC specialty boards are ~~randomly~~ assigned to serve each month of the year on the Adult ART and nine  
93 NLRB members from the Pediatric specialty board are assigned to serve each month of the year on the



94 Pediatric ART. There may be multiple ARTs, depending on the volume of cases. An NLRB member will be  
95 selected to serve for no more than one month each year on the ART. The ART meets via conference call  
96 at the same day and time each week; however calls may be rescheduled in advance to accommodate  
97 federal holidays. Each ART will be scheduled to meet via conference call according to a predetermined  
98 schedule.

99  
100 ART appeals from the Adult Other Diagnosis and Adult HCC specialty boards will be reviewed by the Adult  
101 ART. ART appeals from the Pediatric specialty board will be reviewed by the Pediatric ART.

102  
103 In the event of a planned absence, the ART member may designate their alternate to serve. The  
104 representative must notify UNOS of this in UNet<sup>SM</sup>.

105  
106 Five members of the ART must participate in the call. If at least five members do not attend the call, the  
107 appeal will be rescheduled for the following regularly scheduled conference call. If at least five members  
108 do not attend the second attempt to review the appeal, the candidate's exception request is automatically  
109 approved.

110  
111 The appeal must achieve a majority plus one affirmative votes in order to be approved.

112  
113 A representative at the petitioning program may serve as the candidate's advocate. If a representative is  
114 unable to attend the conference call, the program may ask for the appeal to be scheduled for the following  
115 regularly scheduled conference call. If after two attempts a representative is unable to attend the call, the  
116 ART will review the appeal without the program's participation. In the absence of a representative on the  
117 conference call, the program may submit written information for the ART's consideration.

118  
119 The ART will work with UNOS staff to document the content of the discussion and final decision in  
120 UNet<sup>SM</sup>.

## 121 **7. Liver Committee Review**

122  
123 The Liver Committee may delegate review to a subcommittee. If the review is delegated, majority is based  
124 on the size of the subcommittee.

125  
126 Appeals to the Liver Committee will be considered electronically unless at least one member of the Liver  
127 Committee requests a conference call. If the case is discussed on a conference call, quorum is a majority  
128 of the Liver Committee (or the subcommittee, if delegated).

129  
130 The appeal must achieve a majority affirmative votes in order to be approved.

131

132 **Guidance to Liver Transplant Programs and the National Liver**  
 133 **Review Board for Adult MELD Exception Review**

134 **Polycystic Liver Disease (PLD)**

135 Certain patients with PLD may benefit from MELD exception points. Indication for an exception include  
 136 those with PCLKD (Mayo type D or C) with severe symptoms plus *any* of the following:

- 137
- 138 ▪ Hepatic decompensation
  - 139 ▪ Concurrent hemodialysis
  - 140 ▪ GFR less than 20 ml/min
  - 141 ▪ Patient with a prior kidney transplant
  - 142 ▪ Moderate to severe protein calorie malnutrition

143 **Transplant programs should provide the following criteria when submitting exceptions for PLD. The**  
 144 **Review Board should consider the following criteria when reviewing exception applications for**  
 145 **candidates with PLD.**

- 146
- 147 1. Management of PLD
- 148

149 **PLD Classification – Mayo Modification**

Types	A	B	C	D
Symptoms	0 - +	++/+++	++/+++	++/+++
Cyst Findings	Focal	Focal	Diffuse	Diffuse
Spared Remnant Volume	≥3	≥2	≥1	<1
PV/HV Occlusion	No	No	No	Yes

- 150
- 151 2. Surgical Management of PLD
    - 152 • Indications:
      - 153 a. Types C\* and D **and** at least 2 of the following:
        - 154 ○ Hepatic decompensation
        - 155 ○ Concurrent renal failure (dialysis)
      - 156 b. Compensated comorbidities
    - 157 **Note:** Prior resection/fenestration, alternative therapy precluded.

158

159 Patients who meet the criteria above should be considered for a MELD exception similar to other policy-  
 160 assigned exception scores. for MELD exception points such that transplantation may be expected within  
 161 the year.

162  
163 When a candidate also meets the medical eligibility criteria for liver-kidney allocation as described in  
164 OPTN Policy 9.9: Liver-Kidney Allocation and is registered on the kidney waitlist, the candidate should be  
165 considered for a MELD exception score similar to the score assigned to candidates with primary  
166 hyperoxaluria in OPTN Policy.