Chapter 5

ET Liver Allocation System (ELAS)
# Change record

<table>
<thead>
<tr>
<th>Date</th>
<th>Author</th>
<th>Version</th>
<th>Change reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>05-11-19</td>
<td>M de Rosner – van Rosmalen</td>
<td>5.17</td>
<td>NSE HCC criteria for Germany according to TOM-study added to the SE application</td>
</tr>
<tr>
<td>24-09-19</td>
<td>M de Rosner – van Rosmalen</td>
<td>5.16</td>
<td>Change in SE urea cycle disorder (all countries), SE HAT and SE hyperoxaluria (non-German countries)</td>
</tr>
<tr>
<td>23-09-19</td>
<td>M de Rosner – van Rosmalen</td>
<td>5.15</td>
<td>Check for correctness, completeness and approval of the entire manual by the ELIAC incl version of Sept 24</td>
</tr>
<tr>
<td>18-06-19</td>
<td>M van Rosmalen</td>
<td>5.14</td>
<td>Addition SE HCC Belgium according to up-to-seven</td>
</tr>
<tr>
<td>18-06-19</td>
<td>M van Rosmalen</td>
<td>5.12</td>
<td>Change of the terms HB and NHB to DBD and DCD</td>
</tr>
<tr>
<td>20-02-2019</td>
<td>J. de Boer</td>
<td>5.11</td>
<td>Adaptation HU criteria for Hepatoblastoma in Germany (5.2.1.1)</td>
</tr>
<tr>
<td>29-01-2019</td>
<td>M van Rosmalen</td>
<td>5.10</td>
<td>Extracorporeal liver support as replacement of term MARS therapy</td>
</tr>
<tr>
<td>02-11-2018</td>
<td>M van Rosmalen</td>
<td>5.9</td>
<td>Clarification of Belgian DCD center offer sequence</td>
</tr>
<tr>
<td>13-02-2018</td>
<td>M van Rosmalen</td>
<td>5.8</td>
<td>Textual adjustments about email notifications</td>
</tr>
<tr>
<td>24-11-2017</td>
<td>M van Rosmalen</td>
<td>5.7</td>
<td>Removing text with regard to email notifications</td>
</tr>
<tr>
<td>14-09-2017</td>
<td>M van Rosmalen</td>
<td>5.6</td>
<td>Clarifying the ENIS diagnoses required per SE, clarification procedure for obligations in DCD liver allocation</td>
</tr>
<tr>
<td>09-08-2017</td>
<td>M van Rosmalen</td>
<td>5.6</td>
<td>Clarification back up procedure for intended liver split</td>
</tr>
<tr>
<td>20-06-2017</td>
<td>M van Rosmalen</td>
<td>5.5</td>
<td>Implementation of SE NET Germany</td>
</tr>
<tr>
<td>17-05-2017</td>
<td>M van Rosmalen</td>
<td>5.4</td>
<td>Adaptation procedure for SE downstaged HCC (3c) for Belgium</td>
</tr>
<tr>
<td>16-05-2017</td>
<td>M van Rosmalen</td>
<td>5.3</td>
<td>Implementation R-LAC02.14 Germany, R-LAC03.14 and R-LAC04.14 all countries. Adaptation INR values on the HU request form</td>
</tr>
<tr>
<td>22-11-2016</td>
<td>M van Rosmalen</td>
<td>5.2</td>
<td>Implementation of P-LAC10.16</td>
</tr>
<tr>
<td>27-10-2016</td>
<td>M van Rosmalen</td>
<td>5.1</td>
<td>Implementation R-LAC04.13 MARS Therapy</td>
</tr>
<tr>
<td>17-05-2016</td>
<td>M van Rosmalen</td>
<td>5.0</td>
<td>Implementation R-LAC02.13, R-LAC03.13 for Germany, adaptation SE HCC Germany, Implementation of SE hepatoblastoma and SE urea cycle disorder Hungary, Implementation of NSE system Croatia</td>
</tr>
<tr>
<td>21-10-2015</td>
<td>M van Rosmalen</td>
<td>4.11</td>
<td>Implementation of P-LAC02.15 and the collection of AFP</td>
</tr>
<tr>
<td>12-09-2015</td>
<td>M van Rosmalen</td>
<td>4.10</td>
<td>Implementation of R-LAC02.13, R-LAC03.13 and R-LAC02.14 for Austria</td>
</tr>
<tr>
<td>13-07-2015</td>
<td>M van Rosmalen</td>
<td>4.9</td>
<td>Textual adjustments split liver allocation</td>
</tr>
<tr>
<td>19-06-2015</td>
<td>M van Rosmalen</td>
<td>4.8</td>
<td>Implementation R-LAC05.14</td>
</tr>
<tr>
<td>Date</td>
<td>Author</td>
<td>Version</td>
<td>Change reference</td>
</tr>
<tr>
<td>------------</td>
<td>---------------</td>
<td>---------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>15-12-2014</td>
<td>M van Rosmalen</td>
<td>4.7</td>
<td>Implementation R-LAC02.13, R-LAC03.13, R-LAC02.14</td>
</tr>
<tr>
<td>06-11-2014</td>
<td>M van Rosmalen</td>
<td>4.6</td>
<td>Textual Adjustments</td>
</tr>
<tr>
<td>13-10-2014</td>
<td>M van Rosmalen</td>
<td>4.5</td>
<td>Textual Adjustments</td>
</tr>
<tr>
<td>10-12-2013</td>
<td>L.Boogert</td>
<td>4.4</td>
<td>Textual Adjustments, no obligations for DCD donors (The Netherlands and Belgium)</td>
</tr>
<tr>
<td>26-09-2013</td>
<td>L.Boogert</td>
<td>4.3</td>
<td>Adaptation waiting time within MELD</td>
</tr>
<tr>
<td>13-08-2013</td>
<td>L.Boogert</td>
<td>4.2</td>
<td>Textual Adjustments</td>
</tr>
<tr>
<td>28-05-2013</td>
<td>L.Boogert</td>
<td>4.1</td>
<td>Recertification Lab Meld (5.6.1.2.1)</td>
</tr>
<tr>
<td>08-03-2013</td>
<td>J. Blok</td>
<td>4.0</td>
<td>Textual Adjustments</td>
</tr>
<tr>
<td>12-12-2012</td>
<td>L.Boogert</td>
<td>3.1</td>
<td>DCD Netherlands allocation may start immediately after the donor is reported; HU criteria Budd Chiari and Morbus Wilson adjusted (ELIAC meeting 24.09.2012) 5.5.1 Lab values must be from same sample</td>
</tr>
<tr>
<td>13-09-2012</td>
<td>L.Boogert</td>
<td>3.0</td>
<td>Text added page 3</td>
</tr>
<tr>
<td>21-03-2012</td>
<td>L.Boogert</td>
<td>2.9</td>
<td>Implementation of RLIAC 03.10 (Lab values Na, CHE and Ferritin have to be reported when insert (new) lab meld) (5.1.1.2.2)</td>
</tr>
<tr>
<td>02-03-2012</td>
<td>L.Boogert</td>
<td>2.8</td>
<td>Changes in current SE (5.8, 5.10) (Richtlinien zur Organtransplantation gemäß §16 TPG, der Tagesordnung der 05. Sitzung der Ständigen Kommission Organtransplantation am 22.11.2011), Adaption 5.5.1 RLIAC01.12, Letter by Renal replacement therapy. Kidney after Liver bonus points copy from ETKAC manual</td>
</tr>
<tr>
<td>29-12-2010</td>
<td>L.Boogert</td>
<td>2.7</td>
<td>Check ELIAC</td>
</tr>
<tr>
<td>27-08-2010</td>
<td>L.Boogert</td>
<td>2.6</td>
<td>5.1.1.3.2. Recertification Lab meld 5.5.1.22 Lab data provided</td>
</tr>
<tr>
<td>15-06-2010</td>
<td>L.Boogert</td>
<td>2.5</td>
<td>Adaptation HU criteria (5.2) Adaptation Random audit system (5.5.1.2), In the Netherlands HCC can only be requested if the recipient is actively on the waiting list for at least 6 months (status T, HU)(5.8.2.4).</td>
</tr>
<tr>
<td>01-03-2010</td>
<td>L.Boogert</td>
<td>2.4</td>
<td>Adaptation Deviant national definitions Austria (5.4.1.2.1)</td>
</tr>
<tr>
<td>09-12-2009</td>
<td>L.Boogert</td>
<td>2.3</td>
<td>Adaptation Domino donor allocation Germany (5.3.9.1)</td>
</tr>
<tr>
<td>08-12-2009</td>
<td>L.Boogert</td>
<td>2.2</td>
<td>Adaptation Pediatric MELD score age group&lt;12 years of age (5.2.3 Transplantable (T), elective pediatric patient)</td>
</tr>
<tr>
<td>15-04-2009</td>
<td>L.Boogert</td>
<td>2.1</td>
<td>Adaptation ECD criteria (add donor age &gt;65 yrs), Several textual adaptations Change in SE Persistent hepatic dysfunction, the Netherlands</td>
</tr>
<tr>
<td>19-09-2008</td>
<td>L.Boogert</td>
<td>2.0</td>
<td>Adaptation donor profile (5.3.2),Changes in SE, new SE and adaptations in current SE (5.8, 5.10)</td>
</tr>
<tr>
<td>02-07-2008</td>
<td>L.Boogert</td>
<td>1.9</td>
<td>Adaptation Split procedure Germany LLS &amp; eRL (5.4.4.1.1.1)</td>
</tr>
</tbody>
</table>
The Eurotransplant Manual contains the rules and regulations for the implementation and specification of national legislation and national guidelines for waiting list management, organ procurement and allocation. It has been prepared with the best of knowledge and the utmost care. In case of discrepancies between the content of this manual and national binding provisions, the following applies:

- In so far, as provisions about the acceptance of organ recipients to the waiting list are concerned, this manual has only an informative character. Only the national provisions which are applicable for the transplant centers are relevant and legally binding.
- For the allocation of organs only the national provisions are legally binding. The display of the allocation provisions in this Manual are based on these legally binding national provisions. As far as necessary, they have been specified by Eurotransplant in this Manual. Deviations from such specifying Eurotransplant provisions cannot be considered as a breach of the national provisions as long as the latter are not violated. Eurotransplant cannot be held liable for a potentially wrongful description in this Manual of procedures, in connection with the organ allocation, as long as the actual allocation follows national provisions.

This Manual is property of Eurotransplant. Reproduction of the Manual, in whole or part, is only permitted with prior permission of Eurotransplant.
ELAS Manual

Table of contents

5.1 MELD SCORE ............................................................................................................. 11
  5.1.1 MELD formula .................................................................................................. 11
    5.1.1.1 Explanation to MELD formula .................................................................. 11
    5.1.1.2 MELD definitions .................................................................................... 12
      5.1.1.2.1 Lab MELD ......................................................................................... 12
      5.1.1.2.2 Additional Lab values ........................................................................ 12
      5.1.1.2.3 Exceptional MELD .......................................................................... 13
      5.1.1.2.4 Pediatric MELD ................................................................................ 13
    5.1.1.3 Recertification ........................................................................................... 13
      5.1.1.3.1 Voluntary updates ............................................................................. 13
      5.1.1.3.2 Scheduled recertification .................................................................. 14
      5.1.1.3.2.1 ET recertification schedule .............................................................. 14
      5.1.1.3.2.2 Center work list ............................................................................. 14
    5.1.1.4 Exceptions .................................................................................................. 14
      5.1.1.4.1 Standard exception (SE) ................................................................... 14
      5.1.1.4.2 Non-standard exception (NSE) ........................................................... 15
    5.1.1.5 Reconfirmation of exceptional MELD ......................................................... 15

5.2 URGENCIES ............................................................................................................ 16
  5.2.1 High Urgency (HU) .......................................................................................... 16
    5.2.1.1 Inclusion criteria first liver transplant ......................................................... 16
    5.2.1.2 ALF, King’s College criteria ..................................................................... 16
      5.2.1.2.1 ALF, Acetaminophen (Paracetamol) intoxication ............................... 16
      5.2.1.2.2 ALF, other causes ............................................................................. 17
    5.2.1.3 ALF, Clichy criteria .................................................................................. 17
    5.2.1.4 Inclusion criterion acute liver retransplant ............................................... 17
    5.2.1.5 HU audit .................................................................................................. 17
    5.2.1.6 HU Re-evaluation ..................................................................................... 18
    5.2.1.7 HU recipient not transplantable ................................................................. 18
    5.2.1.8 Appeal to Audit decision ......................................................................... 18
  5.2.2 Approved Combined Organ (ACO) ................................................................. 18
    5.2.2.1 ACO audit ............................................................................................... 18
  5.2.3 Transplantable (T), elective pediatric patient ............................................... 19
    5.2.3.1 Pediatric patients <12 years .................................................................... 19
    5.2.3.2 Upgrade of pediatric MELD Pediatric patients <12 years .................... 19
    5.2.3.3 Pediatric patients ≥12<16 years .............................................................. 19
    5.2.3.4 Upgrade of pediatric MELD Pediatric patients ≥12 <16 years .......... 19
    5.2.3.5 Pediatric candidates turning 16 years on the waiting list .................... 19
    5.2.3.6 Lab MELD and pediatric MELD .............................................................. 19
    5.2.3.7 Pediatric SE and reaching of age threshold ............................................ 20
    5.2.3.8 Children turning 16 years on the waiting list .......................................... 20
  5.2.4 Transplantable (T), elective adult patient ...................................................... 20
  5.2.5 Not Transplantable (NT) .................................................................................. 20
    5.2.5.1 Recertification and reconfirmation in NT ................................................. 20
    5.2.5.2 Reactivation after NT ............................................................................. 21

5.3 ELAS - GENERAL ......................................................................................................... 22
  5.3.1 Medical Urgency .............................................................................................. 22
5.3.2 ENIS donor profile

5.3.3 General waiting time counter

5.3.4 Urgency-specific waiting timer counters HU/ACO

5.3.5 Candidates with equal MELD score

5.3.5.1 Example

5.3.6 Region

5.3.6.1 Germany

5.3.6.1.1 German regions

5.3.6.1.2 Match list examples

5.3.7 ABO blood group rules

5.3.7.1 Pediatric donor (<46 kg)

5.3.7.1.1 HU pediatric (Full compatibility)

5.3.7.1.2 HU adult (Compatibility type 1)

5.3.7.1.3 ACO adult & pediatric (Full compatibility)

5.3.7.1.4 T pediatric

5.3.7.1.5 T adult, MELD ≥30 (Compatibility type 1)

5.3.7.1.6 T adult, MELD <30 (Compatibility type 2)

5.3.7.1.7 T adult, all MELD scores (Full compatibility)

5.3.7.2 Adult donor (≥46 kg)

5.3.7.2.1 HU adult & pediatric (Compatibility type 1)

5.3.7.2.2 ACO adult & pediatric (Full compatibility)

5.3.7.2.3 T adult & pediatric, MELD ≥30 (Compatibility type 1)

5.3.7.2.4 T adult & pediatric, MELD <30 (Compatibility type 2)

5.3.7.2.5 T adult & pediatric, all MELD scores (Full compatibility, non-German countries only)

5.3.7.3 2nd Split, adult & pediatric (Full compatibility)

5.3.7.4 Slovenia, adult T patients (Full compatibility)

5.3.8 Split liver transplantation (SLT)

5.3.8.1 50/50-rule

5.3.8.2 Splitting not possible

5.3.9 Domino liver transplantation

5.3.9.1 Deviant national regulations

5.3.9.1.1 Germany

5.3.10 Non-heart-beating liver transplantation

5.3.10.1 Deviant national regulations

5.3.10.1.1 Austria

5.3.10.1.2 Belgium

5.3.10.1.3 Croatia

5.3.10.1.4 Germany

5.3.10.1.5 The Netherlands

5.3.11 Kidney after liver transplant

5.3.12 Requirements

5.3.13 Basic allocation principle

5.3.13.1 International allocation between ET countries

5.3.13.2 Deviant national definitions

5.3.13.2.1 Austria

5.3.13.2.1.1 Austrian regions

5.3.13.2.1.2 Austrian free regions

5.3.13.2.2 Belgium

5.3.13.2.3 Croatia
5.3.14 Allocation algorithm pediatric donor (<46 kg) non-German countries .......................... 37
  5.3.14.1 Allocation algorithm pediatric donor (<46 kg) Germany ...................................... 39
5.3.15 Allocation algorithm adult donor (≥46 kg) non-German countries ........................... 40
  5.3.15.1 Allocation algorithm adult donor (≥46 kg) Germany ............................................ 40
5.3.16 Split liver allocation algorithm ................................................................................. 42
  5.3.16.1 Deviant national regulations .................................................................................. 42
  5.3.16.1.1 Germany ........................................................................................................... 42
  5.3.16.1.1.1 Splitting for left lateral segment & extended right lobe ................................ 42
      5.3.16.1.1.1.1 Extended right lobe as second Split ..................................................... 42
  5.3.16.1.1.2 Left lateral segment as second Split ............................................................ 43
  5.3.16.1.2 Splitting for left lobe & right lobe ................................................................. 43
5.3.17 Obligation to offer ...................................................................................................... 44
  5.3.17.1 Generating an obligation ....................................................................................... 44
  5.3.17.2 Closing an obligation ................................ ............................................................... 44
      5.3.17.2.1 Allocation of obligation livers .............................................................. 44
      5.3.17.2.2 Order of closing an obligation ............................................................ 44
  5.3.17.3 Deviant national definitions .................................................................................. 45
      5.3.17.3.1 Austria ......................................................................................................... 45
      5.3.17.3.2 Slovenia ....................................................................................................... 45
      5.3.17.3.3 Netherlands ................................................................................................. 45
      5.3.17.3.4 Belgium ........................................................................................................ 45
5.4 REGISTRATION OF ELECTIVE (T) RECIPIENTS .............................................................. 46
  5.4.1 Quality assurance and data verification ................................................................. 46
      5.4.1.1 All MELD scores .............................................................................................. 46
      5.4.1.2 MELD 25+ ....................................................................................................... 47
      5.4.1.2.1 No (lab) data provided ................................................................................. 47
      5.4.1.2.2 (Lab) data provided ..................................................................................... 47
      5.4.1.2.3 Transplantation with unverified lab MELD .................................................. 48
      5.4.1.3 Lab Meld <25 .................................................................................................... 48
      5.4.1.3.1 No lab data provided .................................................................................... 49
      5.4.1.3.2 Lab data provided ....................................................................................... 49
      5.4.1.3.3 Transplantation with unverified lab MELD .................................................. 49
  5.4.2 Requests for higher priority ......................................................................................... 50
      5.4.2.1 Request for HU ................................................................................................. 50
      5.4.2.1.1 HU and voluntary updates ......................................................................... 50
      5.4.2.1.2 HU and scheduled recertification ............................................................... 50
      5.4.2.1.3 Change of HU to T ...................................................................................... 50
      5.4.2.1.4 Examples ..................................................................................................... 51
      5.4.2.2 Request for ACO .............................................................................................. 52
      5.4.2.2.1 ACO and voluntary updates ...................................................................... 52
      5.4.2.2.2 ACO and scheduled recertification ............................................................. 52
      5.4.2.2.3 Change of ACO to T .................................................................................... 52
5.5 RECERTIFICATION T RECIPIENTS ................................................................................. 53
  5.5.1 Scheduled recertification ............................................................................................ 53
      5.5.1.1 ET recertification schedule .............................................................................. 53
      5.5.1.2 Recertification results and consequences ............................................................. 54
      5.5.1.2.1 No data received at recertification date ...................................................... 54
      5.5.1.3 Waiting list management lab MELD ................................................................. 55
      5.5.1.3.1 Notifications ............................................................................................... 55
      5.5.1.3.2 Waiting list overview .................................................................................. 55
5.5.2 Voluntary updates ........................................................................................................... 56
  5.5.2.1 lab MELD .................................................................................................................. 56
  5.5.2.2 Exceptional MELD ..................................................................................................... 56
  5.5.2.3 Example .................................................................................................................... 56

5.5.3 Not Transplantable (NT) ..................................................................................................... 57
  5.5.3.1 Example .................................................................................................................... 57
  5.5.3.2 Recertification schedules while in NT ........................................................................ 57
  5.5.3.3 Examples .................................................................................................................. 58
    5.5.3.3.1 No update or recertification during NT ................................................................. 58
    5.5.3.3.2 Downgrade after missed recertification during NT .............................................. 58
    5.5.3.3.3 Scheduled recertification during NT ................................................................. 58
    5.5.3.3.4 Voluntary update and scheduled recertification during NT ............................... 58

5.6 REGISTRATION OF EXCEPTIONAL STATUS ....................................................................... 59
  5.6.1 Request for exception ...................................................................................................... 59
    5.6.1.1 Standard exception (SE) ......................................................................................... 59
    5.6.1.2 Non-standard exception (NSE) .............................................................................. 59
    5.6.1.3 Recertification of lab MELD in SE/NSE recipients .................................................. 60
      5.6.1.3.1 Scheduled recertification while (non-)standard exception (SE) ......................... 60
      5.6.1.3.2 Voluntary update while standard exception (SE) ............................................. 62
    5.6.1.4 Reconfirmation of exceptional MELD ................................................................. 62
      5.6.1.4.1 Reconfirmation of standard exception (SE) ....................................................... 63
      5.6.1.4.1.1 No data received at recertification date ......................................................... 64
      5.6.1.4.2 Reconfirmation of non-standard exception (NSE) ......................................... 64
      5.6.1.4.2.1 No data received at recertification date ....................................................... 65

5.7 STANDARD EXCEPTION (SE), STRATIFIED BY DISEASE .............................................. 66
  5.7.1 Biliary atresia .................................................................................................................. 66
    5.7.1.1 Initial SE exceptional MELD .................................................................................. 66
    5.7.1.2 Upgraded SE exceptional MELD .......................................................................... 66

  5.7.2 Cholangiocarcinoma ........................................................................................................ 67
    5.7.2.1 Initial SE exceptional MELD .................................................................................. 67
    5.7.2.2 Upgraded SE exceptional MELD .......................................................................... 67

  5.7.3 Hepatic artery thrombosis ................................................................................................ 67
    5.7.3.1 Initial SE exceptional MELD .................................................................................. 67
    5.7.3.2 Upgraded SE exceptional MELD .......................................................................... 68

  5.7.4 Hepatocellular carcinoma (HCC) ..................................................................................... 68
    5.7.4.1 Initial SE exceptional MELD .................................................................................. 68
    5.7.4.2 Upgraded SE exceptional MELD .......................................................................... 69
    5.7.4.3 Pathology reports of explanted HCC livers .............................................................. 69
    5.7.4.4 On liver waiting list for at least 6 months (Netherlands) ........................................ 69

  5.7.5 Non-metastatic hepatoblastoma ...................................................................................... 69

  5.7.6 Cystic fibrosis .................................................................................................................. 70
    5.7.6.1 Initial SE exceptional MELD .................................................................................. 70
    5.7.6.2 Upgraded SE exceptional MELD .......................................................................... 70

  5.7.7 Familial Amyloidotic Polyneuropathy (FAP) ............................................................... 70
    5.7.7.1 Initial SE exceptional MELD .................................................................................. 70
    5.7.7.2 Upgraded SE exceptional MELD .......................................................................... 71
    5.7.7.3 Modified Polyneuropathy Disability Score (PND) ................................................. 71
    5.7.7.4 Modified Body Mass Index (mBMI) ........................................................................ 71
5.7.8 Primary hyperoxaluria Type 1 (PH1) .............................. 71
  5.7.8.1 Initial SE exceptional MELD .................................. 72
  5.7.8.2 Upgraded SE exceptional MELD ............................. 72

5.7.9 Polycystic liver disease (PLD) .................................. 72
  5.7.9.1 Initial SE exceptional MELD .................................. 73
  5.7.9.2 Upgraded SE exceptional MELD ............................. 73

5.7.10 Urea-cycle disorder/organic acidemia .......................... 73

5.7.11 Hepato-pulmonary syndrome (HPS) ............................. 73
  5.7.11.1 Initial SE exceptional MELD .................................. 74
  5.7.11.2 Upgraded SE exceptional MELD ............................. 74

5.7.12 Porto-pulmonary hypertension (PoPH) ......................... 74
  5.7.12.1 Initial SE exceptional MELD .................................. 74
  5.7.12.2 Upgraded SE exceptional MELD ............................. 74

5.7.13 Persistent hepatic dysfunction (including “small for size”-syndrome) with indication for retransplantation This SE replaces the current SE “small for size syndrome” ........................ 74
  5.7.13.1 Initial SE exceptional MELD .................................. 75
  5.7.13.2 Upgraded SE exceptional MELD ............................. 75

5.7.14 Hereditary hemorrhagic teleangectasia (Rendu-Osler-Weber-Syndrome) ........ 75
  5.7.14.1 Initial SE exceptional MELD .................................. 75
  5.7.14.2 Upgraded SE exceptional MELD ............................. 75
  5.7.14.3 Initial SE exceptional MELD in case of acute liver failure due to hemorrhagic teleangectasia (Rendu-Osler-Weber-syndrome) ........................................... 75

5.7.15 Hepatic hemangioendothelioma .................................. 75
  5.7.15.1 Initial SE exceptional MELD .................................. 76
  5.7.15.2 Upgraded SE exceptional MELD ............................. 76

5.7.16 Biliary sepsis ..................................................... 76
  5.7.16.1 Initial SE exceptional MELD .................................. 76
  5.7.16.2 Upgraded SE exceptional MELD ............................. 76

5.7.17 Biliary sepsis/ Secondary sclerosing cholangitis (SSC) Germany .................. 76
  5.7.17.1 Initial SE exceptional MELD .................................. 77
  5.7.17.2 Note .............................................................. 77
  5.7.17.3 Upgraded SE exceptional MELD ............................. 77

5.7.18 Primary sclerosing cholangitis (PSC) ............................. 77
  5.7.18.1 Initial SE exceptional MELD .................................. 77
  5.7.18.2 Upgraded SE exceptional MELD ............................. 77

5.7.19 Primary sclerosing cholangitis (PSC) Germany .................. 78
  5.7.19.1 Initial SE exceptional MELD .................................. 78
  5.7.19.2 Upgraded SE exceptional MELD ............................. 78

5.7.20 Neuroendocrine tumors (NET) Germany ......................... 78
  5.7.20.1 Initial SE exceptional MELD .................................. 79
  5.7.20.2 Upgraded SE exceptional MELD ............................. 79

5.8 PROSPECTIVE AUDIT FOR EXCEPTIONAL MELD .................. 80
  5.8.1 Prospective audits for non-standard exception (NSE) ...................... 80
    5.8.1.1 Belgium ..................................................... 81
    5.8.1.2 The Netherlands ............................................. 81
    5.8.1.3 Germany .................................................... 82
5.8.1.4 Croatia ........................................................................................................ 82
5.8.2 Prospective audits for standard exception (SE) .............................................. 82
5.8.3 Deviant national regulations ........................................................................ 83

5.9 ADDENDUM A - STANDARD EXCEPTION LISTS ........................................... 84
5.9.1 Austria ............................................................................................................ 84
5.9.2 Slovenia .......................................................................................................... 87
5.9.3 The Netherlands ............................................................................................. 90
5.9.4 Germany .......................................................................................................... 92
5.9.5 Belgium/Luxembourg ..................................................................................... 95
5.9.6 Croatia ............................................................................................................ 98
5.9.7 Hungary .......................................................................................................... 102
5.9.8 Graph ............................................................................................................. 103
5.9.9 Table ............................................................................................................... 104

5.10 FORMS ........................................................................................................... 105
5.1 MELD score
The Model for End-stage Liver Disease (MELD) scoring system was developed by the Organ Procurement and Transplantation network (OPTN)/United Network for Organ Sharing (UNOS) and implemented in February 2002. The ET Board decided in 2003 to implement MELD for liver allocation in Eurotransplant.

The calculation of an individual’s MELD score is based on three objective lab parameters, i.e. International Normalized Ratio (INR), creatinine, and bilirubin.

MELD aims at stratifying recipients by their disease severity according to a score estimating the 3-month probability of death on the waiting list.

A high MELD indicates severe illness, thus a candidate in urgent need of transplantation. Candidates are stratified in a descending order, starting with the highest MELD.

MELD is only applied for the listing and matching of elective (T) recipients with an end-stage chronic liver disease, i.e. recipients not eligible for status High Urgency (HU) or Approved Combined Organ (ACO).

Candidates can, at the initiative of the transplant center, have an exceptional MELD assigned if disease severity is not accurately reflected by lab MELD.

Transplant centers are responsible for the waiting list management. A candidate’s current status in ENIS must reflect the current clinical status. Any change in a candidate’s status must be entered immediately.

5.1.1 MELD formula
The MELD formula is calculated as follows:

MELD Score = 0.957 x Loge(creatinine mg/dL) + 0.378 x Loge(bilirubin mg/dL) + 1.120 x Loge(INR) + 0.643

5.1.1.1 Explanation to MELD formula
The MELD formula is handled as follows:
- MELD score is multiplied by 10 and rounded to the nearest whole number;
- Laboratory values less than 1.0 are set to 1.0 in MELD score calculation;
- Maximum S-Creatinine in the MELD score equation is 4.0 mg/dl. The MELD formula calculates ‘0.957 x Loge(4.0)’ in S-Creatinine values >4.0 mg/dl;
- A positive answer to ‘Had Dialysis twice within a week prior to Serum Creatinine test?’2 will result in a S-Creatinine of 4.0 mg/dl applied in the MELD formula;
- The maximum lab MELD applied in the matching is 40, i.e. lab MELD scores exceeding 40 are adjusted to 40.
- The use of any vitamin K antagonists influences the INR value in the MELD score equation (see Chapter Registration of elective (T) recipients).

1 RLAC01.03, confirmed by ET Board in May 2003; UNOS policy at www.unos.org.
2 The answer can only be Yes if “dialysis” is equal to renal replacement therapy.
5.1.1.2 MELD definitions

In matching procedures it will be necessary to make a distinction between a calculated MELD score and those that are not based on the three lab values, i.e. exceptions. In this regard, the following expressions are introduced:

<table>
<thead>
<tr>
<th>MELD</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>lab MELD</td>
<td>MELD scores calculated after data entry of lab values or downgraded lab MELD scores if unrecertified.</td>
</tr>
<tr>
<td>pediatric MELD</td>
<td>PELD alternative for children &lt;16 years of age.</td>
</tr>
<tr>
<td>exceptional MELD</td>
<td>MELD scores granted for either standard (SE) or non-standard exceptions (NSE).</td>
</tr>
<tr>
<td>match MELD</td>
<td>The MELD score applied in the match, i.e. either lab MELD, pediatric MELD or exceptional MELD. In all cases in the benefit of the patient, i.e. the highest valid MELD at time of matching.</td>
</tr>
</tbody>
</table>

5.1.1.2.1 Lab MELD

The lab MELD is the (downgraded) calculated MELD score of a recipient. Calculation is performed upon (re)registration, scheduled or voluntary recertification. Downgrades are performed if recertification is not performed on time.

The lab MELD is applied in the matching:
in all T recipients;
if an ET donor liver is offered to recipients from non-national ET donor countries (except obligation-to-offer organs);
if non-ET donors are offered to and allocated within ET.

The maximum lab MELD applied in the matching is 40, i.e. lab MELD scores >40 are capped at 40 in the matching.

5.1.1.2.2 Additional Lab values

At time of listing and with every MELD update the following three additional lab values can be reported to Eurotransplant:

- Serum Sodium
- Serum Cholinesterase
- Serum Ferritin
- alpha feto protein (AFP)\(^3\)

These lab values might be helpful in further improving liver allocation via a modified MELD-score, therefore they should be reported to Eurotransplant.

For pediatric recipients, the Serum Albumin is requested at time of listing and with every MELD update. This value is not taken into account in the labMELD score.

\(^3\) as of December 12, 2015
5.1.1.2.3 **Exceptional MELD**

An exceptional MELD is applied in eligible standard exception (SE) or non-standard exception (NSE) recipients. The exceptional MELD is not based on the lab values, but has a fixed initial value and can be upgraded at 90-day intervals.

Recipients have the exceptional MELD applied in matching procedures if the exceptional MELD is higher than the current lab MELD.

Recipients have their lab MELD applied in matching procedures if the lab MELD is higher than the current exceptional MELD.

5.1.1.2.4 **Pediatric MELD**

All pediatric recipients registered under the age of 16 years are automatically assigned the initial pediatric MELD. Upgrades are automatically performed after 90 days if the recipient has not been transplanted. Upgrades are performed until the recipient reaches the age threshold of 16 years. If the candidate turns 16 years and is still awaiting liver transplantation then the (upgraded) pediatric MELD is frozen and the recipient continues to have that frozen pediatric MELD applied in the match until transplantation.

5.1.1.3 **Recertification**

Recipients registered on the waiting list must be recertified at set intervals. The length of the interval until the following recertification depends on country- and urgency-specific rules.

Transplant centers are responsible for the correctness of the data entered to recertify the candidates’ lab MELD.

See chapter 5.5.1 *Quality assurance and data verification* for the required data in case of a standard or random audit.

5.1.1.3.1 **Voluntary updates**

A transplant center can update a candidate’s lab MELD voluntarily at any time during the regular recertification interval. A higher lab MELD would improve this candidate’s chance for a timely transplantation. A lower lab MELD would prevent jeopardizing other candidate’s chance for a timely transplantation.

A candidate’s voluntarily updated lab MELD is immediately applied in the matching.
5.1.1.3.2 Scheduled recertification

A lab MELD is expected to be recertified by the transplant centers at scheduled intervals.

Data must not be older than the specified expiry date at data entry. Also most recent data must be used. If lab values are older than the expiry date, data will not be accepted; urgency and country-specific rules apply.

Note: Information on the lab sheet (patient identification and lab values) is not allowed to be handwritten (except for the ET number of the recipient).

5.1.1.3.2.1 ET recertification schedule

<table>
<thead>
<tr>
<th>MELD</th>
<th>lab MELD expires after</th>
<th>Notification before expiry</th>
<th>Expiry date of lab values at data entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>MELD ≥25</td>
<td>7 d</td>
<td>2 d</td>
<td>not older than 48 h</td>
</tr>
<tr>
<td>MELD ≤24, &gt;18</td>
<td>30 d</td>
<td>7 d</td>
<td>not older than 7 d</td>
</tr>
<tr>
<td>MELD ≤18, ≥11</td>
<td>90 d</td>
<td>14 d</td>
<td>not older than 14 d</td>
</tr>
<tr>
<td>MELD ≤10</td>
<td>365 d</td>
<td>30 d</td>
<td>not older than 30 d</td>
</tr>
</tbody>
</table>

5.1.1.3.2.2 Center work list

Transplant centers will have access to specific reports provided through the MELD web application accessible through the ET member site at www.eurotransplant.org.

5.1.1.4 Exceptions

Patients whose disease severity is not adequately reflected by lab MELD can, at the initiative of the transplant center, be requested for an exceptional MELD.

5.1.1.4.1 Standard exception (SE)

Patients can be requested for a standard exception (SE) at any time after registration; disease and country-specific rules apply. The list of SE defines:
- diseases eligible for SE;
- disease-specific SE criteria;
- initial MELD equivalent assigned at time of approval;
- time interval until upgrade/recertification urgency/MELD equivalent assigned upon qualifying for upgrade.

Recipients must fulfill country and disease-specific criteria before the exceptional MELD can be approved.

If the exceptional MELD was approved, then this status is granted for the duration of 90 days. Before the expiry of this 90-day period the SE status must be reconfirmed by accessing the web application again; disease and country-specific rules apply.
5.1.1.4.2 **Non-standard exception (NSE)**

Patients who are not eligible for an SE can be requested for a non-standard exception (NSE) at any time after registration; disease and country-specific rules apply.

NSE candidates have to be prospectively audited by a national audit group; national audit rules apply. Recipients must be approved by the national audit group before the exceptional MELD can be approved.

If the no-standard exception was approved, then this status is granted for the duration of 90 days. Before the expiry of this 90-day period the NSE status must be reconfirmed.

Candidates who have been approved for NSE by the national audit group are assigned an initial exceptional MELD of 10% equivalent of 3-month probability of death; country-specific rules apply.

5.1.1.5 **Reconfirmation of exceptional MELD**

Recipients with an exceptional MELD have to be reconfirmed before the end of the 90-day period. Centers can find information in the MELD-application; exception and country-specific rules apply.

Voluntary reconfirmations before the notified period are not possible.
5.2 Urgencies

Urgency codes are used to classify patients on the waiting list and to prioritize patients in the match and allocation procedure. Urgency codes reflect medical urgency and transplantability.

<table>
<thead>
<tr>
<th>Medical Urgency</th>
<th>Priority</th>
<th>Obligation to offer</th>
</tr>
</thead>
<tbody>
<tr>
<td>HU</td>
<td>High Urgency</td>
<td>Internationally 1&lt;sup&gt;st&lt;/sup&gt;</td>
</tr>
<tr>
<td>ACO</td>
<td>Approved Combined Organ</td>
<td>Internationally 2&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
<tr>
<td>T</td>
<td>Elective patients</td>
<td>MELD scores in descending order</td>
</tr>
<tr>
<td>NT</td>
<td>Temporarily not-transplantable</td>
<td>not matched</td>
</tr>
</tbody>
</table>

5.2.1 High Urgency (HU)

5.2.1.1 Inclusion criteria first liver transplant

- Acute liver failure (ALF) defined by King’s College or Clichy criteria;<sup>4</sup>
- Acute graft failure (<15 days post-transplant);
- Acute liver failure due to rapidly progressive Morbus Wilson;<sup>5</sup>
- Acute liver failure due to rapidly progressive Budd-Chiari Syndrome;
- Life-threatening liver trauma;
- Anhepatic state secondary to ALF with toxic liver syndrome.
- Hepatoblastoma<sup>6</sup>. Criteria:
  - Recipient is <16 years old and
  - Hepatoblastoma proven in liver biopsy and
- Recipient is suitable for transplantation after chemotherapeutical treatment and
- Absence or complete resection of vital extrahepatic metastases and
- Germany: not curable by partial liver resection
- Urea cycle disorder<sup>7</sup>. Criteria:
  - Recipient is <3 years old and
  - Has a urea cycle disorder or organic acidemia and
  - Recipient is a suitable candidate for liver transplantation

5.2.1.2 ALF, King’s College criteria<sup>8</sup>

5.2.1.2.1 ALF, Acetaminophen (Paracetamol) intoxication

| pH <7.3 (irrespective of grade of encephalopathy) | or | PT >100 sec (INR >6.5)<sup>9</sup> and S-Creatinine >3.4 mg/dl (300 μmol/l) and Encephalopathy grade III or IV |

---

<sup>4</sup> In case of assessing ALF both Clichy and King’s College criteria can be used, according to the centers possibilities. ELIAC meeting May 11, 2010
<sup>5</sup> Decided on ELIAC meeting September 24, 2012
<sup>6</sup> Implemented as direct HU indication (SE no longer applicable) as of May 16, 2017
<sup>7</sup> Implemented and adapted as direct HU indication (SE no longer applicable) as of September 24, 2019
<sup>9</sup> All INR values adapted on 16-05-2017 according to literature as decided by the ELIAC on 16-12-2015
5.2.1.2.2 ALF, other causes

| PT >100 sec (INR >6.5) (irrespective of grade of encephalopathy) | or | any 3 of the following conditions (irrespective of grade of encephalopathy): | age <10 yrs or >40 yrs | total S-Bilirubin >17.5 mg/dl (300 µmol/l) | onset jaundice >7d before onset encephalopathy | PT >50 sec (INR>3.5) | cause of ALF: NANB hepatitis, halothane, idiosyncratic drug reaction |

5.2.1.3 ALF, Clichy criteria\(^{10}\)

| Encephalopathy grade III/IV and | F V ≤20% for recipients <30 yrs, or F V ≤30% for recipients ≥30 years |

5.2.1.4 Inclusion criterion acute liver retransplant

Candidates with acute graft failure within 14 days post-transplant after immediate previous liver transplant.

The previous transplant must be registered in ENIS.

5.2.1.5 HU audit

The corresponding HU form, either first or retransplant (see Forms at www.eurotransplant.org), must be completed on all items and sent to the ET duty desk. The following criteria have to be met:

- Key element of the request is a detailed motivation letter
- Copies of all findings (lab values, X-ray, CT, MRI, pathology reports, biopsy, ultrasound etc.) mentioned in the motivation letter have to be included.
- Lab values should not be older than 12 hours and not written by hand.

The ET Medical Staff evaluates the request according to the HU criteria. HU is granted if the criteria are met. Upon approval the urgency is changed in ENIS.

In doubtful cases, two members of the ELIAC, from outside the country of the requesting center, are contacted to evaluate the HU request. In a tie situation, a third ELIAC member will decide on the approval or denial of the HU request. Before sending the request to the ELIAC, the transplant center should send in a motivation letter together with the request.

A remote center cannot assign urgency HU in ENIS.

In case a center has entered in ENIS that they have no capacity for transplantation, HU recipients will still receive the offer.

A transplant center should place the patient in a status other than HU, if the clinical status of a patient improves, or remove the candidate from the waiting list if he

---

deteriorates beyond transplantability.

5.2.1.6 HU Re-evaluation

HU status for liver transplant recipients has to be re-evaluated every 14 days. At the time of re-evaluation the number, and if requested, also the details of a turned down liver organ offer in the preceding 14 days have to be reported to the auditors.

5.2.1.7 HU recipient not transplantable

Patients in HU status who become (temporarily) not transplantable have to be reported as NT and will at that moment lose the HU status and the so far accumulated HU days. If these recipients turn transplantable a new HU request has to be sent to Eurotransplant.

5.2.1.8 Appeal to Audit decision

If the center does not agree the judgment of the auditors an appeal can be sent to Eurotransplant. The appeal will be send to the Auditors that already evaluated the original request. In case one or several auditors are not available and new auditors have to be approached, the previous decisions will be added to the request. In case of a second or higher appeal, the request will be evaluated during daytime.

5.2.2 Approved Combined Organ (ACO)

Patients in need of a multi-organ liver transplant - except liver+kidney - can be requested for status ACO. A patient with ACO status is prioritized above Transplantable patients on the liver match, below the patients with HU status. In case of a pediatric donor, pediatric patients with the ACO status are prioritized over adult patients with an ACO status.

5.2.2.1 ACO audit

The corresponding ACO forms (see Forms at www.eurotransplant.org) must be completed on all items with a complete and appropriate documentation and justification in English, and sent back to the ET duty desk. The request is then sent to one member of the ELIAC (liver, intestine) and, depending on the other organ(s), one member of this organ-specific advisory committee(s) (pancreas [EPAC], thoracic [EThAC]). Both members must be from outside the requesting country and will be given 24 hours to reach a unanimous decision. In a tie situation, a third member will decide on the approval or denial of the ACO request.

A remote center cannot assign status ACO in ENIS.

In case a center has entered in ENIS that they have no capacity for transplantation, ACO recipients will still receive the offer.

---

11 RLAC05.09 ELIAC meeting October 14, 2009
12 RLAC05.09 ELIAC meeting October 14, 2009
13 Agreed on in ELIAC meeting July 7, 2013
14 Confirmed in ELAC meeting August 31, 2005.
5.2.3 **Transplantable (T), elective pediatric patient**

Pediatric patients are recipients younger than 16 years of age.

All recipients <16 years are registered on the liver waiting list entering MELD and PELD data, the latter only for scientific purposes. In the allocation, only MELD will be considered\(^\text{15}\).

5.2.3.1 *Pediatric patients <12 years*

All recipients <12 years of age are eligible for an initial pediatric MELD equivalent to 35%\(^\text{16}\) probability of 3-month mortality on the waiting list.

5.2.3.2 *Upgrade of pediatric MELD Pediatric patients <12 years*

If a recipient <12 years of age with a pediatric MELD was not transplanted within 90 days, then this pediatric MELD is automatically upgraded, without the need for an active reconfirmation by the center. The upgrade equals standard an additional 15% increase in probability of 3-month mortality on the waiting list.

This procedure will be performed at the end of each 90-day cycle until transplantation or removal from the waiting list.

5.2.3.3 *Pediatric patients ≥12 <16 years*

All recipients ≥12 <16 years of age are eligible for an initial pediatric MELD equivalent to 15%\(^\text{17}\) probability of 3-month mortality on the waiting list.

5.2.3.4 *Upgrade of pediatric MELD Pediatric patients ≥12 <16 years*

If a recipient ≥12 <16 years of age with a pediatric MELD was not transplanted within 90 days, then this pediatric MELD is automatically upgraded, without the need for an active reconfirmation by the center. The upgrade is a 10% increase in probability of 3-month mortality on the waiting list.

This procedure will be performed at the end of each 90-day cycle until transplantation or removal from the waiting list.

5.2.3.5 *Pediatric candidates turning 16 years on the waiting list*

Pediatric candidates registered younger than 16 years, that turn 16 years still awaiting transplantation, will have their (upgraded) pediatric MELD frozen at the level that it was when turning 16; no further automated upgrades are performed.

5.2.3.6 *lab MELD and pediatric MELD*

\(^{15}\) RLAC03.05 of the PELD consensus meeting July 2005, approved by ELAC in August 2005 and ET Board in October 2005.

\(^{16}\) In RLAC04.09 implemented on the 6\(^\text{th}\) of December 2009 was stated that pediatric patients <12 years of age should get a higher pediatric Meld in order to lower the average waiting time.

\(^{17}\) In the discussion leading to RLAC03.05 it was stated that pediatric patients should at least not be disadvantaged with regard to HCC patients. The original proposal proposed 15% equivalent, changed to 10% assuming that HCC should be lowered to 10%. As a matter of fact, the bonus for HCC has never been lowered to 10%. Therefore, 15% should be maintained for children.
In addition to the pediatric MELD, recipients <16 years of age are expected to have their lab MELD recertified according to the recertification schedule; urgency and country-specific rules apply.

If, in a matching procedure, a lab MELD is lower than the pediatric MELD, then the pediatric MELD is used.

If, in a matching procedure, a lab MELD is higher than the pediatric MELD, then the lab MELD is used.

5.2.3.7 Pediatric SE and reaching of age threshold

Some pediatric SE know an age threshold:
- PH1 (Oxalosis) <1yr,
- biliary atresia <2yr.

If a pediatric recipient with one of these SE reaches the age threshold then the exceptional MELD is frozen at the time the recipient reaches the age threshold. This frozen exceptional MELD is kept until transplantation.

5.2.3.8 Children turning 16 years on the waiting list

A pediatric recipient will automatically move from the pediatric to the adult status after his/her 16th birthday on the waiting list. From that moment on, all waiting list and urgency criteria for adult candidates apply.

Any pediatric MELD will cease to be applied in the matching; possible exceptional MELD scores for pediatric SE are kept.

5.2.4 Transplantable (T), elective adult patient

Adult patients are recipients 16 years of age or older. Recipients are stratified by lab MELD or exceptional MELD, respectively, in descending order; urgency and country-specific rules apply.

Recipients 16 years of age or older should have lab MELD recertified according to the recertification schedule.

5.2.5 Not Transplantable (NT)

Patients temporarily not transplantable (NT) should be placed in status NT. Time spent in NT is not limited. Patients in NT do not accumulate MELD-specific waiting time. Previously accumulated total and MELD-specific waiting time is retained in NT.

Patients appear on the national waiting list without MELD scores and are not selected in matching procedures.

MELD-specific waiting time counters start again once a candidate is placed back in status transplantable (T).

5.2.5.1 Recertification and reconfirmation in NT
Candidates in NT should have their lab MELD recertified according to the recertification schedule; urgency-specific rules apply.

Voluntary updates or scheduled recertifications of lab MELD do not result in the reactivation of a candidate.

Recipients with an exceptional MELD should have their exceptional MELD reconfirmed before the end of the 90-day period; country-specific rules apply.

5.2.5.2 Reactivation after NT

A patient is reactivated by assigning the transplantable (T) status. If a candidate is placed back in an active urgency, then the last (un)recertified lab MELD or exceptional MELD is used in the matching.
5.3 ELAS - general

Selection and ranking of recipients is based on medical urgency, AB0 blood group rules, donor weight, ENIS donor profile, waiting time and donor region; country-specific rules apply.

5.3.1 Medical Urgency

Patients to be considered in the matching are candidates who have a status different from NT and are transplantable with:
- urgency HU or ACO or T status;
- a valid ((un)recertified) lab MELD;
- a valid (upgraded) exceptional MELD;
- a valid (upgraded) pediatric MELD.

5.3.2 ENIS donor profile

A transplant center must specify for each recipient an ENIS center- or patient-specific donor profile, respectively.

It is in the transplant center’s responsibility to update the profile depending on the recipient’s requirements.

This donor profile includes the option to accept a marginal liver. The liver donor will be marginal at registration if one of the following criteria is met:
- Donor age > 65 yrs
- ICU stay with ventilation > 7 days;
- BMI >30;
- Steatotic liver > 40%;
- Serum Sodium > 165 mmol/l;
- SGPT > 105 U/l;
- SGOT > 90 U/l;
- Serum Bilirubin > 3 mg/dl.

5.3.3 General waiting time counter

After registration of a recipient in an active urgency, the general waiting time counter starts. Every day spent in any active urgency HU or T counts towards the general waiting time; waiting time is counted in days and is not limited.

5.3.4 Urgency-specific waiting timer counters HU/ACO

Urgency HU and status ACO have an urgency-specific waiting time counter. Waiting time is counted starting on the most recent date of the start of the current HU/ACO period. The longest waiting HU/ACO recipient is ranked first within the urgency-specific group.
5.3.5 Candidates with equal MELD score

If two or more T recipients have the same MELD score, i.e. lab MELD or exceptional MELD, respectively, then waiting time is used to further stratify these recipients. Calculation of waiting time is performed each time an individual recipient participates in a matching procedure.

Waiting time counted towards stratification is composed of time [d] spent:
- in the current MELD;
- previously higher lab MELD or exceptional MELD,
- previously in HU.

Waiting time in the previous higher lab MELD or exceptional MELD is only counted when there is no downgrade or lower MELD in between.

The candidate with the longest waiting time according to this calculation is ranked first.

5.3.5.1 Example

A waiting list with more than one recipient with the same MELD score could look like this:

<table>
<thead>
<tr>
<th>Recipient</th>
<th>MELD</th>
<th>Waiting days</th>
<th>Waiting days previous MELD, by score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>25</td>
<td>2d</td>
<td>2d MELD 27</td>
</tr>
<tr>
<td>B</td>
<td>26</td>
<td>1d</td>
<td>34d MELD 22</td>
</tr>
<tr>
<td>C</td>
<td>18</td>
<td>30d</td>
<td>2d MELD 20</td>
</tr>
<tr>
<td>D</td>
<td>25</td>
<td>6d</td>
<td>None</td>
</tr>
<tr>
<td>E</td>
<td>18</td>
<td>30d</td>
<td>50d MELD 8</td>
</tr>
<tr>
<td>F</td>
<td>25</td>
<td>2d</td>
<td>3d MELD 26</td>
</tr>
<tr>
<td>G</td>
<td>12</td>
<td>85d</td>
<td>90d MELD 7</td>
</tr>
</tbody>
</table>
A match list at any point in time would then look like the following:

<table>
<thead>
<tr>
<th>Recipient</th>
<th>MELD</th>
<th>Waiting days</th>
<th>Waiting days previous</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>current MELD</td>
<td>MELD, by score</td>
</tr>
<tr>
<td>B</td>
<td>26</td>
<td>1d</td>
<td>34d MELD 22</td>
</tr>
<tr>
<td>D</td>
<td>25</td>
<td>6d</td>
<td>None</td>
</tr>
<tr>
<td>F</td>
<td>25</td>
<td>2d</td>
<td>3d MELD 26</td>
</tr>
<tr>
<td>A</td>
<td>25</td>
<td>2d</td>
<td>2d MELD 27</td>
</tr>
<tr>
<td>C</td>
<td>18</td>
<td>30d</td>
<td>2d MELD 20</td>
</tr>
<tr>
<td>E</td>
<td>18</td>
<td>30d</td>
<td>50d MELD 8</td>
</tr>
<tr>
<td>G</td>
<td>12</td>
<td>85d</td>
<td>90d MELD 7</td>
</tr>
</tbody>
</table>

### 5.3.6 Region

Countries within ET can choose to create sub regions within this country. Regions can be of influence in the allocation.

#### 5.3.6.1 Germany

If two or more German T recipients have the same lab MELD or exceptional MELD, respectively, then all recipients from transplant centers assigned to the one of the seven DSO donor regions are ranked before all other German candidates from transplant centers from outside the donor region.

Within the groups, i.e. those recipients inside and outside the donor region are then again sorted by their accrued waiting time according to ET definitions (see 5.3.5).

#### 5.3.6.1.1 German regions

<table>
<thead>
<tr>
<th>Donor region</th>
<th>Transplant center</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBWOR</td>
<td>Heidelberg (GDBD), Tübingen (GTU)</td>
</tr>
<tr>
<td>GBYOR</td>
<td>München Großhadern (GML), München r.d. Isar (GMH), Nürnberg (GNB), Regensburg (GRB), Würzburg (GWZ)</td>
</tr>
<tr>
<td>GMIOR</td>
<td>Frankfurt (GFM), Mainz (GMZ)</td>
</tr>
<tr>
<td>GNDOR</td>
<td>Göttingen (GGO), Hamburg (GHG), Hannover (GHO), Kiel (GKI)</td>
</tr>
<tr>
<td>GNOOR</td>
<td>Berlin Charité (GBC), Rostock (GRO)</td>
</tr>
<tr>
<td>GNWOR</td>
<td>Aachen (GAK), Bonn (GBO), Essen (GES), Köln-Lindenthal (GKL), Köln-Merheim (GKM), Münster (GMN)</td>
</tr>
<tr>
<td>GOSOR</td>
<td>Jena (GJE), Leipzig (GLP), Magdeburg (GMB)</td>
</tr>
</tbody>
</table>
5.3.6.1.2 Match list examples

### Waiting list

<table>
<thead>
<tr>
<th>Recipient</th>
<th>MELD</th>
<th>Waiting days current MELD</th>
<th>Waiting days previous MELD, by score</th>
<th>TXP center</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>25</td>
<td>2d</td>
<td>2d MELD 27</td>
<td>GJE</td>
</tr>
<tr>
<td>B</td>
<td>26</td>
<td>1d</td>
<td>34d MELD 22</td>
<td>GHG</td>
</tr>
<tr>
<td>C</td>
<td>18</td>
<td>30d</td>
<td>2d MELD 20</td>
<td>GHO</td>
</tr>
<tr>
<td>D</td>
<td>25</td>
<td>6d</td>
<td>None</td>
<td>GML</td>
</tr>
<tr>
<td>E</td>
<td>18</td>
<td>30d</td>
<td>50d MELD 8</td>
<td>GMB</td>
</tr>
<tr>
<td>F</td>
<td>25</td>
<td>2d</td>
<td>4d MELD 26</td>
<td>GFM</td>
</tr>
<tr>
<td>G</td>
<td>12</td>
<td>85d</td>
<td>90d MELD 7</td>
<td>GBO</td>
</tr>
</tbody>
</table>

1) Match list, donor from GOSOR

<table>
<thead>
<tr>
<th>Recipient</th>
<th>MELD</th>
<th>Waiting days current MELD</th>
<th>Waiting days previous MELD, by score</th>
<th>TXP center</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>26</td>
<td>1d</td>
<td>34d MELD 22</td>
<td>GHG</td>
</tr>
<tr>
<td>A</td>
<td>25</td>
<td>2d</td>
<td>2d MELD 27</td>
<td>GJE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3d MELD 15</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>25</td>
<td>2d</td>
<td>4d MELD 26</td>
<td>GFM</td>
</tr>
<tr>
<td>D</td>
<td>25</td>
<td>6d</td>
<td>None</td>
<td>GML</td>
</tr>
<tr>
<td>E</td>
<td>18</td>
<td>30d</td>
<td>50d MELD 8</td>
<td>GMB</td>
</tr>
<tr>
<td>C</td>
<td>18</td>
<td>30d</td>
<td>2d MELD 20</td>
<td>GHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3d MELD 6</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>12</td>
<td>85d</td>
<td>90d MELD 7</td>
<td>GBO</td>
</tr>
</tbody>
</table>
2) Match list, donor from GMIOR

<table>
<thead>
<tr>
<th>Recipient</th>
<th>MELD</th>
<th>Waiting days</th>
<th>Waiting days previous MELD, by score</th>
<th>TXP center</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>26</td>
<td>1d</td>
<td>34d MELD 22</td>
<td>GHG</td>
</tr>
<tr>
<td>F</td>
<td>25</td>
<td>2d</td>
<td>4d MELD 26</td>
<td>GFM</td>
</tr>
<tr>
<td>D</td>
<td>25</td>
<td>6d</td>
<td>None</td>
<td>GML</td>
</tr>
<tr>
<td>A</td>
<td>25</td>
<td>2d</td>
<td>2d MELD 27 3d MELD 15</td>
<td>GJE</td>
</tr>
<tr>
<td>C</td>
<td>18</td>
<td>30d</td>
<td>2d MELD 20 3d MELD 6</td>
<td>GHO</td>
</tr>
<tr>
<td>E</td>
<td>18</td>
<td>30d</td>
<td>50d MELD 8</td>
<td>GMB</td>
</tr>
<tr>
<td>G</td>
<td>12</td>
<td>85d</td>
<td>90d MELD 7</td>
<td>GBO</td>
</tr>
</tbody>
</table>

5.3.7 AB0 blood group rules

In case the national allocation rules of a certain country contains standard center offers via the match, the standard blood group rules as described below apply. A recipient can be selected from the match list and is therefore a recipient with an active status and according to the blood group rules of the match.

In case no suitable blood group AB0-compatible recipient (pediatric or adult) is found for a deceased donor <46 kg within Eurotransplant, this liver will be offered for transplantation in blood group AB0-incompatible children <1 year of age\(^{18}\).

5.3.7.1 Pediatric donor (<46 kg)

5.3.7.1.1 HU pediatric (Full compatibility)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>A, B, AB and O</td>
</tr>
</tbody>
</table>

5.3.7.1.2 HU adult (Compatibility type 1)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>B and O</td>
</tr>
</tbody>
</table>

\(^{18}\) RLAC04.14 AB0-incompatible liver offers for pediatric recipients <1 year if no suitable AB0-compatible recipient can be found, implemented as of May 16, 2017
5.3.7.1.3 ACO adult & pediatric (Full compatibility)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>A, B, AB and O</td>
</tr>
</tbody>
</table>

5.3.7.1.4 T pediatric

AB0 identical (before Full compatibility)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A (and AB)</td>
</tr>
<tr>
<td>B</td>
<td>B (and AB)</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>O (A, B, AB)</td>
</tr>
</tbody>
</table>

5.3.7.1.5 T adult, MELD ≥30 (Compatibility type 1)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>B and O</td>
</tr>
</tbody>
</table>

In the matching procedure this rule applies to:
all national ET recipients with respect to the ET donor country based on the (exceptional) MELD;
all international ET recipients with respect to the ET donor country based on the (un)recertified lab MELD;
all international ET recipients with respect to non-ET donor countries based on the (un)recertified lab MELD.

5.3.7.1.6 T adult, MELD <30 (Compatibility type 2)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
5.3.7.1.7 T adult, all MELD scores (Full compatibility)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>A, B, AB and O</td>
</tr>
</tbody>
</table>

In the matching procedure this rule applies to:
all national ET recipients with respect to the (non-German) ET donor country based on the (exceptional) MELD. See paragraph Allocation algorithm.

5.3.7.2 Adult donor (≥46 kg)

5.3.7.2.1 HU adult & pediatric (Compatibility type 1)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>B and O</td>
</tr>
</tbody>
</table>

5.3.7.2.2 ACO adult & pediatric (Full compatibility)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>A, B, AB and O</td>
</tr>
</tbody>
</table>

5.3.7.2.3 T adult & pediatric, MELD ≥30 (Compatibility type 1)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>B and O</td>
</tr>
</tbody>
</table>

In the matching procedure this rule applies to:
all national ET recipients with respect to the ET donor country based on the (exceptional) MELD;
all international ET recipients with respect to the ET donor country based on the (un)recertified lab MELD;
all international ET recipients with respect to non-ET donor countries based on the (un)recertified lab MELD.
5.3.7.2.4  T adult & pediatric, MELD <30 (Compatibility type 2)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

In the matching procedure this rule applies to:
all national ET recipients with respect to the ET donor country based on the (exceptional) MELD;
all international ET recipients with respect to the ET donor country based on the (un)recertified lab MELD;
all international ET recipients with respect to non-ET donor countries based on the (un)recertified lab MELD.

5.3.7.2.5  T adult & pediatric, all MELD scores (Full compatibility, non-German countries only)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>A, B, AB and O</td>
</tr>
</tbody>
</table>

In the matching procedure this rule applies to:
all national ET recipients with respect to the (non-German) ET donor country based on the (exceptional) MELD. See paragraph Allocation algorithm.

5.3.7.3  2nd Split, adult & pediatric (Full compatibility)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>A, B, AB and O</td>
</tr>
</tbody>
</table>

5.3.7.4  Slovenia, adult T patients (Full compatibility)

<table>
<thead>
<tr>
<th>Donor blood group</th>
<th>Eligible recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A and AB</td>
</tr>
<tr>
<td>B</td>
<td>B and AB</td>
</tr>
<tr>
<td>AB</td>
<td>AB</td>
</tr>
<tr>
<td>O</td>
<td>A, B, AB and O</td>
</tr>
</tbody>
</table>
5.3.8 Split liver transplantation (SLT)

Suitable post-mortem livers should be split if possible. A transplant center accepting the initial ELAS whole liver offer can decide to split the liver and is then defined as the splitting center.

The splitting center is obliged to report this “intent to split” back to the ET duty desk at the time of accepting the whole liver offer. The center must report:
- which split-liver graft (LLS vs. eRL) is to be transplanted and which one is offered to ET;
- the splitting technique, i.e. in situ vs. ex situ;
- the location where the splitting procedure will be performed (transplant center, donor hospital, 2nd split transplant center);
- whether the splitting center has a suitable recipient for the 2nd split in case of rescue allocation;
- whether the 1st split recipient is suitable for a whole liver graft if the splitting cannot be performed or if a reduced size transplantation is performed.

For the allocation and national deviations, see paragraph Allocation algorithm.

5.3.8.1 50/50-rule

This rule is intended to increase awareness for SLT in Eurotransplant and to document a transplant centers intention to split at the time of a post-mortem whole liver offer.

Each liver from a post-mortem donor who meets the conditions ≥50 kg body weight and ≤50 years of age is considered a potential split-liver donor. The ET duty officers will ask the transplant center receiving a whole liver offer from this donor whether a split procedure is considered. The transplant center’s decision will then be documented. If a transplant center does not consider a split procedure, a reason must be given. The transplant center’s intention to split does not oblige the center to perform the procedure after receiving the whole liver for transplant.

5.3.8.2 Splitting not possible

If a splitting procedure is not possible, the whole liver:
- can be used for a reduced size liver transplantation;
- can be transplanted as a whole liver into the initially selected liver candidate for who the split was planned, if he had also been eligible for this whole liver according to the ELAS match list;
- is offered to the first eligible whole liver recipient on the initial whole liver ELAS match list if the initially selected recipient is not eligible for a whole liver.
5.3.9 Domino liver transplantation

If a post-mortem donor liver is transplanted in a patient whose primary disease is a non-cirrhotic metabolic disorder, e.g. Familial Amyloidotic Polyneuropathy (FAP) or Oxalosis, then this patient’s liver can be used for a consecutive, second transplant.

The recipient of the first post-mortem liver is then considered a “living donor”.

A recipient for this domino liver can be selected from the center’s own waiting list. If no local recipient is available, then this domino liver will be allocated through ELAS to patients from the waiting list selected according to their patient profile.

5.3.9.1 Deviant national regulations

5.3.9.1.1 Germany

According to the German law on transplantation (Transplantationsgesetz (TPG)), organs from a Domino donor are offered by the ET duty desk in a patient-oriented fashion with the help of the center- or patient-specific donor profile in the ELAS liver match list (Modifiziertes Vermittlungsverfahren19).

19 Richtlinien zur Organtransplantation gemäß §16 TPG, Access via www.baek.de on June 1, 2004
**5.3.10 Non-heart-beating liver transplantation**

Livers from non-heart-beating donors (DCDD) may only be reported to and will only be allocated by Eurotransplant if the family of the donor has consented to donation.

**5.3.10.1 Deviant national regulations**

5.3.10.1.1 Austria

A liver from a DCDD is allocated in a center-based fashion as for post-mortem heart-beating donors.

5.3.10.1.2 Belgium

A liver from a DCDD is regarded to be an extended criteria donor (ECD) organ. The liver is offered in a center-based fashion, allowing the center to choose a suitable recipient from its own waiting list:
- first to the donor center,
- then to the other Belgian centers following the match list.

In case of a pediatric donor standard allocation sequence is adhered to (see 5.3.14 Allocation algorithm pediatric donor (<46 kg) non-German countries) with the inclusion of center offers.

E.g. In case of a Belgian pediatric donor:
- first a center offer is made to the donor center for pediatric recipients only,
- then center offers to all other national pediatric transplant centers,
- then a center offer is made to the donor center for adult recipients,
- then center offers to all other national adult centers.

Livers from Belgian DCDD are not allocated to non-Belgian patients resulting from the ‘obligation to offer rule’

5.3.10.1.3 Croatia

Organs from a DCDD must not be procured and/or allocated in Croatia.

DCDD organs from outside Croatia must not be allocated and/or transplanted in Croatia.

5.3.10.1.4 Germany

According to the German law on transplantation (Transplantationsgesetz (TPG)), organs from a DCDD must not be procured and/or allocated in Germany.

DCDD organs from outside Germany must not be allocated and/or transplanted in Germany.

5.3.10.1.5 The Netherlands

The donor may be reported to ET no sooner than the planned switch off is known. If the donor is reported to ET, the Liver allocation can start immediately.
A liver from a DCDD is allocated in a patient-oriented fashion as for post-mortem heart-beating donors.

Livers from Dutch DCDD are not allocated to non-Dutch patients resulting from the ‘obligation to offer rule’.
5.3.11 Kidney after liver transplant

In addition to the option of performing a simultaneous liver-kidney transplant the option of transplanting first the liver and the kidney at a later time (i.e. a kidney-after liver transplant) is possible in selected cases. In particular this option is preferred in case of a hepatorenal syndrome.
More details can be found in the Kidney manual.

5.3.12 Requirements

The minimum of standard vessels in the toolkit in case of separate transplantation of liver, pancreas and intestine for transplantation should be:
- Intestine: iliac vessels (artery and vein) and bifurcation
- Pancreas: iliac vessels (artery and vein) and bifurcation
- Liver: common hepatic artery, celiac trunk
- Cannulation in the donor should be done at the level of the aorta
In case all three organs are going to be procured the liver center has to be informed about the limitation in the toolkit at time of acceptance20.
ELAS - allocation algorithms

5.3.13 Basic allocation principle

Regular allocation is patient-oriented, i.e. organ offers are made to transplant centers for one recipient at a time.

5.3.13.1 International allocation between ET countries

If a post-mortem donor organ cannot be allocated in the donor country, except in HU/ACO (see 5.4.2, 5.4.3) and obligation (see 5.4.5.2.1) recipients, then the organ is offered to the other ET countries. Allocation is according to the international match list.

The basis for stratification on the international match list is each recipient’s lab MELD, i.e. either the calculated or downgraded lab MELD. (N)SE exceptional MELD are not considered in the international match.

As an exception, recipients with a pediatric MELD maintain their pediatric MELD in the international allocation.

5.3.13.2 Deviant national definitions

5.3.13.2.1 Austria

Organ offers from Austrian donors are center-offers for the donor center or the assigned center. If a liver can’t be allocated in the donor or assigned region, ET shall offer the liver patient-oriented according to the match list\(^\text{21}\). Donor organs resulting from the obligation-to-offer rule are assigned to an Austrian center and are defined as local donors, thus center offers.

In case of a center offer, patients can be selected according to the blood group rules on the match list.

Before allocating a donor to a suitable patient, Austrian centers must inform at the ET duty desk whether there are suitable HU and/or ACO recipients in the non-Austrian ET region. In case of suitable HU and/or ACO recipients this organ(s) must first be offered to ET. If the organ offer is not accepted for the respective HU and/or ACO patient, then the offer goes back to the donor center.

5.3.13.2.1.1 Austrian regions

Austria knows 3 regions comprising the transplant centers: Innsbruck (AIB), Graz (AGA) and Vienna (AWG).

\(^{21}\) Conclusions of the meeting of the Austrian liver transplant centers, 18.10.2007 St Wolfgang, Annual Meeting of the Austrian Transplant Society.
5.3.13.2.1.2 Austrian free regions

Livers reported from the so-called Austrian free regions, i.e. regions reporting donors without a liver transplant program (Kärnten (AKT), Ober-Österreich (AOx)), are allocated to one of the three Austrian liver transplant programs. Ranking of centers is based on the so-called stochastic center queue.

5.3.13.2.2 Belgium

Organs are offered according to the Belgian law on transplantation, i.e. patients that are listed as follows:
- first to Belgian citizens or those that have their permanent address in Belgium,
- then to ET citizens or those that have their permanent address in ET,
- then to non-ET citizens listed in Belgium that fulfill none of the above criteria.

5.3.13.2.3 Croatia

Organ offers from Croatian donors are center offers; the center is elected by the Ministry of Health and Social Welfare. Donor organs resulting from the obligation-to-offer rule are assigned to the ministry of Health and Social Welfare and are defined as local donors, thus center offers.

In case of a center offer, patients can be selected according to the blood group rules on the match list.

Before allocating a donor to a suitable patient, the ministry of Health and Social Welfare must inform at the ET duty desk whether there are suitable HU and/or ACO recipients in the non-Croatian ET region. In case of suitable HU and/or ACO recipients this organ must first be offered to ET. If the organ offer is not accepted for the respective HU and/or ACO patient, then the offer goes back to the Ministry of Health and Social Welfare.
5.3.14 Allocation algorithm pediatric donor (<46 kg) non-German countries

Livers from pediatric donors should not be used in patients if the donor-to-recipient weight ratio is ≥0.5.

first, to pediatric HU patients (Full compatibility)
(if > 1 HU patient, they appear in order of waiting time in HU)

then, to adult HU patients (Compatibility type 1)
(if > 1 HU patient, they appear in order of waiting time in HU)

then, to pediatric ACO multi-organ patients (Full compatibility)
(if > 1 ACO patient, they appear in order of waiting time in CO)

then, to adult ACO multi-organ patients (Full compatibility)
(if > 1 ACO patient, they appear in order of waiting time in CO)

then, to pediatric patients in open obligation countries/centers ranked by MELD; (AB0-identical before Full compatibility)

then, to pediatric patients in the donor country ranked by MELD; (AB0-identical before Full compatibility)

then, to adult patients <55kg in open obligation countries/centers ranked by MELD; MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2) (See Chapter Blood Group Rules)

then, to adult patients ≥55kg in open obligation countries/centers ranked by MELD; MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

then, to adult patients <55kg in the donor country ranked by MELD; MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

then, to adult patients ≥55kg in the donor country ranked by MELD; MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

then, to adult patients of all weights in the donor country ranked by MELD; Full compatibility

then, to pediatric patients in the other ET countries ranked by MELD; (AB0-identical before Full compatibility)

then, to adult patients <55kg in the other ET countries ranked by MELD; MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

then, to adult patients ≥55kg in the other ET countries ranked by MELD; MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

---

<table>
<thead>
<tr>
<th>Allocation algorithm pediatric donor non-German countries</th>
<th>Blood group rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>HU pediatric</td>
<td>Full compatibility</td>
</tr>
<tr>
<td>HU adult</td>
<td>Compatibility type 1</td>
</tr>
<tr>
<td>ACO pediatric</td>
<td>Full compatibility</td>
</tr>
<tr>
<td>ACO adult</td>
<td>Full compatibility</td>
</tr>
<tr>
<td>pediatric obligation</td>
<td>ABO-identical before Full compatibility</td>
</tr>
<tr>
<td>pediatric recipients donor country</td>
<td>ABO-identical before Full compatibility</td>
</tr>
<tr>
<td>adult obligation (&lt;55kg before ≥55kg)</td>
<td>MELD≥30: Compatibility type 1 before MELD&lt;30: Compatibility type 2</td>
</tr>
<tr>
<td>adult recipients donor country &lt;55kg</td>
<td>MELD≥30: Compatibility type 1 before MELD&lt;30: Compatibility type 2</td>
</tr>
<tr>
<td>adult recipients donor country ≥55kg</td>
<td>MELD≥30: Compatibility type 1 before MELD&lt;30: Compatibility type 2</td>
</tr>
<tr>
<td>adult recipients donor country</td>
<td>All MELD scores: Full compatibility</td>
</tr>
<tr>
<td>adult recipients international</td>
<td>ABO-identical before Full compatibility</td>
</tr>
<tr>
<td>adult recipients international &lt;55kg</td>
<td>MELD≥30: Compatibility type 1 before MELD&lt;30: Compatibility type 2</td>
</tr>
<tr>
<td>adult recipients international ≥55kg</td>
<td>MELD≥30: Compatibility type 1 before MELD&lt;30: Compatibility type 2</td>
</tr>
<tr>
<td>Slovenian donors</td>
<td>Recipients &lt;55kg before ≥55kg, national adult and pediatric T patients Full compatibility</td>
</tr>
</tbody>
</table>

The above scheme follows the national allocation agreements for center based or recipient based offers.
5.3.14.1 Allocation algorithm pediatric donor (<46 kg) Germany

First, to pediatric HU patients (Full compatibility)
(if > 1 HU patient, they appear in order of waiting time in HU)

Then, to adult HU patients (Compatibility type 1)
(if > 1 HU patient, they appear in order of waiting time in HU)

Then, to pediatric ACO multi-organ patients (Full compatibility)
(if > 1 ACO patient, they appear in order of waiting time in CO)

Then, to adult ACO multi-organ patients (Full compatibility)
(if > 1 ACO patient, they appear in order of waiting time in CO)

Then, to pediatric patients in open obligation countries/centers ranked by MELD; (AB0-identical before Full compatibility)

Then, to pediatric patients in the donor country ranked by region and MELD\(^\text{24}\); (AB0-identical before Full compatibility)

Then, to pediatric patients in the other ET countries ranked by MELD; (AB0-identical before Full compatibility)

Then, to adult patients in open obligation countries/centers ranked by MELD: MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

Then, to adult patients in the donor country ranked by region and MELD: MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

Then, to adult patients in the other ET countries ranked by MELD: MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

\(^{24}\) Richtlinien zur Organtransplantation gemäß \textsection 16 TPG, accessed via www.baek.de on December 4, 2006
5.3.15 Allocation algorithm adult donor (≥46 kg) non-German countries

first, to HU patients (pediatric & adult) (Compatibility type 1)
(if > 1 HU patient, they appear in order of waiting time in HU)

then, to ACO multi-organ patients (pediatric & adult) (Full compatibility)
(if > 1 ACO patient, they appear in order of waiting time in ACO)

then, to pediatric & adult patients in open obligation countries/centers
ranked by MELD: MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

then, to pediatric & adult patients in the donor country
ranked by MELD: MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2), before all MELD scores (Full compatibility).

then, to pediatric & adult patients in other ET countries
ranked by MELD; MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

<table>
<thead>
<tr>
<th>Allocation algorithm Adult donor non-German countries</th>
<th>Blood group rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>HU (pediatric and adult)</td>
<td>Compatibility type 1</td>
</tr>
<tr>
<td>ACO (pediatric and adult)</td>
<td>Full compatibility</td>
</tr>
<tr>
<td>obligation (pediatric and adult)</td>
<td>MELD ≥30: Compatibility type 1 before MELD &lt;30: Compatibility type 2</td>
</tr>
<tr>
<td>donor country (pediatric and adult)</td>
<td>MELD ≥30: Compatibility type 1 before MELD &lt;30: Compatibility type 2</td>
</tr>
<tr>
<td>donor country (pediatric and adult)</td>
<td>All MELD scores: Full compatibility</td>
</tr>
<tr>
<td>international (pediatric and adult)</td>
<td>MELD ≥30: Compatibility type 1 before MELD &lt;30: Compatibility type 2</td>
</tr>
<tr>
<td>Slovenian donors</td>
<td>National adult and pediatric T patients Full compatibility</td>
</tr>
</tbody>
</table>

5.3.15.1 Allocation algorithm adult donor (≥46 kg) Germany
first, to HU patients (pediatric & adult) 
(if > 1 HU patient, they appear in order of waiting time in HU)

then, to ACO multi-organ patients (pediatric & adult) 
(if > 1 ACO patient, they appear in order of waiting time in ACO)

then, to pediatric & adult patients in open obligation countries/centers ranked by MELD: MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)

then, to pediatric & adult patients in the donor country ranked by region and MELD: MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2).

then, to pediatric & adult patients in other ET countries ranked by MELD: MELD ≥30 (Compatibility type 1) before MELD <30 (Compatibility type 2)
5.3.16 Split liver allocation algorithm

One split must be transplanted to the patient initially selected by ELAS and for which the splitting center accepted the whole liver.

The allocation algorithm for the second split is as follows:

First, locally, a suitable recipient is chosen by the transplant center from its own waiting list.

Then, suitable recipients selected by ELAS split liver match, first regionally, then nationally, then internationally.

The second split can, e.g. due to logistical or organ-specific reasons, be allocated in centers within close proximity to the splitting center with the help of the so-called rescue allocation.

If, ultimately, the whole liver cannot be split, the patient initially selected by the ELAS whole liver match (recipient that initially accepted the liver for split) receives the whole liver graft. The accepting center of the second split will be informed that the splitting procedure will not be performed and the offer to their recipient is therefore withdrawn. If the initial recipient is not eligible for a whole liver graft, e.g. due to a size mismatch, the HU recipients that newly received the HU status during this allocation procedure will receive the offer of the whole liver, if applicable.

In case the liver is not accepted for the above mentioned HU recipient, the liver will be offered to the recipient that accepted the back-up offer for whole liver. Thereafter, the allocation will proceed according to standard procedure.

5.3.16.1 Deviant national regulations

5.3.16.1.1 Germany

5.3.16.1.1.1 Splitting for left lateral segment & extended right lobe

5.3.16.1.1.1.1 Extended right lobe as second Split

The patient-oriented allocation algorithm for the second split is as follows:

First, to HU patients (pediatric & adult)

Then, nationally, suitable recipients selected by ELAS split liver match ranked by region and MELD;

Then, internationally, suitable recipients selected by ELAS split liver match ranked by MELD.

If, ultimately, the whole liver cannot be split, then the patient initially selected by the ELAS whole liver match receives the whole liver graft. If this recipient is not eligible for a whole liver graft, e.g. due to a size mismatch, then the liver is offered to the first following patient on the ELAS whole liver match eligible for a whole liver graft.
5.3.16.1.1.1.2 Left lateral segment as second Split

The allocation algorithm for the second split is as follows:

first, to HU patients (pediatric & adult)
then, locally, a suitable recipient is chosen by the transplant center from its own waiting list.
then, nationally, suitable recipients selected by ELAS split liver match ranked by region and MELD;
then, internationally, suitable recipients selected by ELAS split liver match ranked by MELD.

If, ultimately, the whole liver cannot be split, then the patient initially selected by the ELAS whole liver match receives the whole liver graft. If this recipient is not eligible for a whole liver graft, e.g. due to a size mismatch, then the liver is offered to the first following patient on the ELAS whole liver match eligible for a whole liver graft.

5.3.16.1.1.2 Splitting for left lobe & right lobe

The rescue allocation algorithm for the second split is as follows:

first, locally, a suitable recipient is chosen by the transplant center from its own waiting list.
then, regionally, suitable recipients selected by ELAS split liver match.
then, nationally, suitable recipients selected by ELAS split liver match.
then, internationally, suitable recipients selected by ELAS split liver match.

If, ultimately, the whole liver cannot be split, then the patient initially selected by the ELAS whole liver match receives the whole liver graft. If this recipient is not eligible for a whole liver graft, e.g. due to a size mismatch, then the liver is offered to the first following patient on the ELAS whole liver match eligible for a whole liver graft.
5.3.17 Obligation to offer

5.3.17.1 Generating an obligation

An ‘obligation to offer’ is generated, if a liver from a donor outside the transplant center’s country is transplanted into a patient in urgency HU or ACO.

In case a liver is allocated to a recipient outside the donor country within ET for a HU or ACO patient and later it turns out that this patient is not transplantable with this liver but the liver is transplanted into an elective patient in the recipient country, this shall nevertheless open up an obligation to send back a liver from the recipient country to the donor country.\textsuperscript{26}

A receiving country has then an “obligation to offer” the next available liver in the same blood group to be able to close the obligation.

5.3.17.2 Closing an obligation

Only if an ‘obligation-to-offer’ liver is offered to and transplanted in the former donor country, will an obligation be closed.

No time limit applies to obligations, they remain open until they are closed.

5.3.17.2.1 Allocation of obligation livers

In case a liver, resulting from an obligation, is offered to a center/country, then this liver is considered to be a local/national liver. As such, all local/national rules apply and the lab MELD or exceptional MELD will be applicable.

5.3.17.2.2 Order of closing an obligation

In case of >1 open obligations, offers will first go to eligible patients from the country with the oldest open obligation, i.e. the obligation that has been created first. Offers are then made in descending order to the second oldest open obligation etc.

Example:
A donor country/center has 3 open obligations in the same blood group:
1 to the Netherlands (since February 14, 2005),
1 to Germany (since March 20, 2005) and
2 to Belgium (one since January 5, 2005, one since April 10, 2005).

Closing of open obligations will be in the following order:
First Belgian patients,
then Dutch patients,
then German patients,
then Belgian patients.
5.3.17.3 Deviant national definitions

5.3.17.3.1 Austria

In Austria, obligations are generated and closed on the basis of ‘country to center’ and ‘center to country’, respectively.

5.3.17.3.2 Slovenia

An obligation is created according to official rules. Closing of an open obligation can occur according to the following mutual agreement:

abol0 blood group for closing an obligation
Slovenia is allowed to close an obligation AB0 compatible, i.e. not necessarily blood group identical.

Moment of closing an obligation
Slovenia can, in case of an own donor and an open obligation to another ET country, decide whether to close the obligation with that donor. If they decide not to close the obligation then this obligation remains open until the next donor and/or until it is closed.

5.3.17.3.3 Netherlands

An obligation from the Netherlands will not be redeemed with a DCD donor. Therefore the match of a DCD liver of a Dutch donor will not contain open obligations.

The creation of obligations will be according to the standard procedure (e.g. in case of accepted and transplantation for a HU patient this will result in an obligation)

5.3.17.3.4 Belgium

An obligation from Belgium will not be redeemed with a DCD donor. Therefore the match of a DCD liver of a Belgian donor will not contain open obligations.

The creation of obligations will be according to the standard procedure (e.g. in case of accepted and transplantation for a HU patient this will result in an obligation)

27 Officially agreed on in May 2004 and confirmed for prolongation in November 2004.
28 Implemented September 2013 13028LAC13
5.4 Registration of elective (T) recipients

In the course of the (re)registration of a recipient on the liver waiting list centers must enter MELD data for calculation of lab MELD.

5.4.1 Quality assurance and data verification

5.4.1.1 All MELD scores

Renal replacement therapy
In case of renal replacement therapy the name of the responsible physician confirming the indication for this therapy must be filled out in the ENIS system or Meld application.29

For candidates on renal replacement therapy, defined as having 2 or more dialysis treatments within the prior week, or candidates who have received 24 hours of CVVHD within the prior week, the serum creatinine level will automatically be set to 4.0 mg/dl.30

Extracorporeal liver support
In case a recipient is on extracorporeal liver support, the center may use the bilirubin and creatinine values measured most prior to the start of the extracorporeal liver support.31

This labMELD under extracorporeal liver support is valid for 7 days irrespective of the height of the labMELD. After 7 days, a re-confirmation can be made. Extracorporeal liver support used to be described as MARS therapy, but since several systems are capable of providing liver support, the term MARS therapy is replaced by the more general term extracorporeal liver support as of 29-01-19. Renal replacement therapy is not considered to be extracorporeal liver support.

Vitamin K antagonists
The INR value is only valid if no Vitamin K antagonists were administered within 2 weeks before determination of that INR value.

In case of Vitamin K antagonist therapy the last value prior to starting Vitamin K antagonists has to be used or the oral Vitamin K antagonists have to be stopped for at least two weeks to determine the current INR.

If no INR value is known at the time of data administration in the Eurotransplant system, a value of 1.00 will be used in the MELD score calculation.32

Not measureable INR
In case the INR value needed for calculation of the labMELD is not measurable for a reason motivated by the treating physician, an INR equivalent (e.g. derived from the Quick) will be determined by an ELIAC auditor with the use of a conversion table, approved by the ELIAC, which is suitable for the respective coagulation test (different pharmaceutical companies), that is used in the hospital.33

This policy is developed in order to facilitate the use of an INR value in cases in which the INR value of a patient cannot be measured. It is decided that in those motivated cases an ELIAC auditor will determine an INR equivalent for the Quick using a conversion table. Each pharmaceutical company that provides coagulation factors for clinical coagulation tests has a specific conversion table for Quick, PT and INR, that has been validated for their specific coagulation factors. Since the conversion tables

---

29 R-LAC 01.12 Agreed on in January 2012 during the Board meeting implemented in the ENIS system and meld application.
30 Agreed on textual adjustment March 2013 during ELIAC meeting
31 R-LAC04.13 MARS Therapy, Implemented on Oct 27, 2016
32 R-LAC02.13 Implemented as mandatory for Belgium, Croatia, Hungary, Luxembourg, the Netherlands and Slovenia as of December 15, 2014, mandatory for Austria as of September 12, 2015, mandatory for Germany as of May 17, 2016.
33 P-LAC02.15 Not measureable INR
can differ amongst companies and therefore amongst centers, the requesting liver transplant center will have to provide the ELIAC auditor with the conversion table as used by their laboratory. This conversion table will contain the ISI (International Sensitivity Index).

5.4.1.2 MELD 25+

Every recipient that is registered on the waiting list with a calculated lab MELD 25+, i.e. no downgrades, will have to undergo a verification procedure.

MELD 25+ verification is performed every day. Upon registration of a recipient with a lab MELD 25+, centers will immediately be informed that they have to send the original lab data to the ET medical administration.

All recipients registered with lab MELD 25+ will be assigned the status pending with regard to their lab MELD. Centers will have to send the lab data before 08:00 the following day.

The ET medical administration will check:
- every incoming lab sheet for MELD 25+ recipients on the day of registration of MELD 25+;
- every morning at 08:00 the day after registration with MELD 25+ whether all lab data for all MELD 25+ recipients have been received.

During the status pending all registered recipients participate in the match as if the lab MELD was valid, i.e. no recipient is put at a disadvantage due to the audit.

5.4.1.2.1 No (lab) data provided

If no lab data was provided until the morning after registration with lab MELD 25+, then the lab MELD as entered on data entry will be declared invalid. The recipient receives a comment in his MELD history explaining the decision.

The lab MELD will still appear in the individual’s MELD history but he will not be counted in any procedure involving MELD-specific waiting time. Such is the case in matching procedures with two or more recipients with the same MELD score.

If one request has been denied than any following request will be audited until the first accepted status was granted.

5.4.1.2.2 (Lab) data provided

If lab data was sent then the ET medical administration will check for consistency in the following:
- the data on the original lab sheet is not handwritten (except for the ET number of the recipient).
- identity of the recipient; name and date of birth
- sample date must not be older than defined in the recertification schedule;
- all lab values must be identical in ENIS and on the lab sheet.
- all lab values must be from the same sample.
- most recent available lab data must be used.
If lab data are consistent then the recipient receives the approved status and the lab MELD is officially declared valid and will appear in the recipients MELD history and is counted in procedures involving MELD-specific waiting time.

If lab data are inconsistent then the lab Meld will be declined. Only after inconsistencies were explained and necessary adaptations were performed will the recipient receive the approved status and will the lab MELD be declared valid. The lab MELD then appears in the recipients MELD history and is counted in procedures involving MELD-specific waiting time.

5.4.1.2.3 Transplantation with unverified lab MELD

As a recipient with status pending participates in the allocation, he can be transplanted without verified lab values. If, after transplantation, verification of the original lab values shows the data to be inconsistent without explanation, then this case will be reported to the national authorities for further evaluation.

5.4.1.3 Lab Meld <25

For recipients with a calculated lab Meld <25, audits will be performed every day and at random (Random audit).

Upon registration of a recipient with a random audit, centers will immediately be informed that they have to send the original lab data to the ET medical administration.

All recipients registered for the random audit will be assigned the status pending with regard to their lab MELD. Centers will have to send the lab data before 08:00 hrs the following day.

The ET medical administration will check:
- every incoming lab sheet for random audit recipients on the day of the random audit;
- every morning at 08:00 hrs the day after the random audit whether all lab data for all random audit recipients have been received.
- the data on the original lab sheet is not handwritten (except for the ET number of the recipient).
- most recent available lab data must be used
- all lab values must be from the same sample.

During the status pending all registered recipients participate in the match as if the lab MELD was valid, i.e. no recipient is put at a disadvantage due to the random audit.
5.4.1.3.1 No lab data provided

If no lab data was provided until the morning after the random audit, then the lab MELD as entered on the random audit will be declared invalid. The recipient receives a comment in his MELD history explaining the decision.

The lab MELD will still appear in the individual’s MELD history but he will not be counted in any procedure involving MELD-specific waiting time. Such is the case in matching procedures with two or more recipients with the same MELD score.

If one request has been denied than any following request will be audited until the first accepted status was granted.

5.4.1.3.2 Lab data provided

If lab data was sent then the ET medical administration will check for consistency in the following fields:
- identity of the recipient;
- sample date must not be older than defined in the recertification schedule;
- all lab values must be identical in ENIS and on the lab sheet.
- all lab values must be from the same sample
- most recent available lab data must be used.

Note: Information on the lab sheet (patient identification and lab values) is not allowed to be handwritten (except for the ET number of the recipient).

If lab data is consistent then the recipient receives the approved status and the lab MELD is officially declared valid and will appear in the recipients MELD history and is counted in procedures involving MELD-specific waiting time.

If lab data is inconsistent then the center will be contacted to explain the inconsistency. Only after inconsistencies were explained and necessary adaptations were performed will the recipient receive the approved status and will the lab MELD be officially declared valid. The lab MELD then appears in the recipients MELD history and is counted in procedures involving MELD-specific waiting time.

5.4.1.3.3 Transplantation with unverified lab MELD

As a recipient with status pending participates in the allocation, he can be transplanted without verified lab values. If, after transplantation, verification of the original lab values shows the data to be inconsistent without explanation, then this case will be reported to the national authorities for further evaluation.
5.4.2 Requests for higher priority

5.4.2.1 Request for HU

Centers can request a high urgency (HU) status for recipients with acute liver failure (ALF) or those in need of an acute re-transplantation within 14 days after the immediate previous transplant. Upon requesting of the HU status the recipient must have an active (T) waiting list status. Handling of requests and auditing are manual procedures. Upgrading, i.e. change to HU status in ENIS is done manually at ET.

Recipients accepted to HU have to continue their recipient's recertification of lab MELD according to the regular schedule. Voluntary updates can also be performed.

A recipient's HU status is not changed due to results from the either scheduled recertification or voluntary update, i.e. upgrade or downgrade.

5.4.2.1.1 HU and voluntary updates

If the lab MELD of a recipient is voluntarily updated, this updated lab MELD will be stored in ENIS. Scheduled recertification is due according to the schedule applicable for this updated score.

5.4.2.1.2 HU and scheduled recertification

If a recipient is regularly recertified, then this recertified lab MELD will be stored in ENIS. Scheduled recertification is due according to the schedule applicable for this recertified score.

If a recipient is not recertified on time then he will be downgraded to MELD 6.

5.4.2.1.3 Change of HU to T

If the HU status is changed to T, then the current MELD is applied in the matching. Status HU can be changed by the center in the following way:
- transplantation (status FU);
- removal from the waiting list (status R);
- change to T with most recent (un)recertified lab MELD applied;
- change to status NT.
5.4.2.1.4  Examples

Example 1

*Transplanted in HU with unrecertified lab MELD*

HU recipient reached scheduled lab MELD recertification, no recertification and lab MELD downgraded to MELD 6; HU maintained.

Example 2

Transplantation in unrecertified lab MELD.

HU recipient reached scheduled lab MELD recertification, no recertification and lab MELD downgraded to MELD 6; HU maintained. HU recipient improves and status is changed to T; current unrecertified lab MELD is applied.
5.4.2.2 Request for ACO

Centers can request status Approved Combined Organ (ACO) for recipients in need of a combined liver and non-renal organ. Upon requesting of the ACO status the recipient must have an active (T) waiting list status. Handling of requests and auditing are manual procedures. Upgrading, i.e. change to ACO status in ENIS is done manually at ET.

Recipients accepted to ACO have to continue their recipient’s recertification of MELD according to the regular schedule. Voluntary updates can also be performed.

A recipient’s ACO status is not changed due to results from the either scheduled recertification or voluntary update, i.e. upgrade or downgrade.

5.4.2.2.1 ACO and voluntary updates

If a recipient is voluntarily updated, then this updated lab MELD will be stored in ENIS. Scheduled recertification is due according to the schedule applicable for this updated score.

5.4.2.2.2 ACO and scheduled recertification

If a recipient is regularly recertified, then this recertified lab MELD will be stored in ENIS. Scheduled recertification is due according to the schedule applicable for this recertified score.

If a recipient is not recertified on time then he will be MELD 6.

5.4.2.2.3 Change of ACO to T

If the ACO status is changed to T, then the current (un)recertified MELD is applied in the matching.
5.5 Recertification T recipients

5.5.1 Scheduled recertification

Non-HU recipients with their (downgrade) lab MELD applied in the matching have to be updated at scheduled intervals. Centers are notified of the start of the scheduled recertification period via the MELD-application.

Data entry during recertification period

Pre-recertification period labMELD

Recertification period (notification at start)

Registration with labMELD

Data must not be older than the specified expiry date at data entry. If lab values are older than allowed (see 5.1.2.1) then the data are not accepted; urgency and country-specific rules apply.

Transplant centers are responsible for the correctness of data entered to recertify the candidates’ MELD.

5.5.1.1 ET recertification schedule

<table>
<thead>
<tr>
<th>MELD</th>
<th>MELD expires after</th>
<th>Data entry before end of recertification period</th>
<th>Expiry date of lab values at data entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>MELD ≥25</td>
<td>7 d</td>
<td>48 h</td>
<td>not older than 48 h</td>
</tr>
<tr>
<td>MELD 19 - 24</td>
<td>30 d</td>
<td>7d</td>
<td>not older than 7 d</td>
</tr>
<tr>
<td>MELD 11 - 18</td>
<td>90 d</td>
<td>14 d</td>
<td>not older than 14 d</td>
</tr>
<tr>
<td>MELD ≤10</td>
<td>365 d</td>
<td>30 d</td>
<td>not older than 30 d</td>
</tr>
</tbody>
</table>
5.5.1.2 Recertification results and consequences

If a recipient's lab MELD is:
- equal to the previous lab MELD, then the candidate is maintained in this lab MELD;
- higher than the previous lab MELD, then the candidate is immediately upgraded to this higher score;
- lower than the previous lab MELD, then the candidate is immediately downgraded to this lower score.

New recertification intervals immediately start at the moment of data entry during the scheduled recertification period. The length of the new interval is again determined by the recertified lab MELD.

5.5.1.2.1 No data received at recertification date

If a recipient's lab MELD is not recertified during the scheduled recertification period, then the candidate is downgraded to MELD 6 at the end of the scheduled recertification period.

---

34 Decided on ELIAC meeting March 2013 according to German Richtlinien
5.5.1.3 Waiting list management lab MELD

All recipients, i.e. those with lab MELD and with an exceptional MELD, must recertify their recipients’ lab MELD at set intervals (see regular recertification schedule).

ET supports remote users in their waiting list management by providing two electronic notifications and several reports.

- **Notification pop up in ENIS upon registration:**
  - date of next recertification

- **Report in web application:**
  - a) overview center waiting list (cumulative/individual)
  - b) standard report in ENIS (?)

### Pre-recertification group

- Registration

### Recertification group

- Voluntary update

### Past due group

- Recertification period:
  - \(2d = \text{MELD} \geq 25\)
  - \(7d = \text{MELD} 19-24\)
  - \(14d = \text{MELD} 11-18\)
  - \(30d = \text{MELD} < 11\)

#### 5.5.1.3.1 Notifications

A notification appears during the registration cascade, after lab MELD is calculated and stored in ENIS, when a pop up window indicates for this registered recipient:
- MELD score group (see recertification schedule);
- date and time of start of scheduled recertification period;
- date and time of end of scheduled recertification period, i.e. that a downgrade will be performed after the end of the period without recertification;

#### 5.5.1.3.2 Waiting list overview

After registration of a recipient on the waiting list, i.e. with an initial lab MELD, this recipient will be added to a center’s liver waiting list report.

An overview of the center’s waiting list will be accessible through the MELD web application that contains:
- a tool to sort the waiting list according to remote user wishes;
- request tool for (N)SE requests;
- information on pre-recertification, recertification and past due statuses of their recipients;
- information on reconfirmation statuses of their recipients;
5.5.2 Voluntary updates

5.5.2.1 lab MELD

A transplant center can update a candidate’s MELD voluntarily at any time between the start of the regular recertification interval and the start of the mandatory recertification period.

A higher lab MELD would improve this candidate’s chance for a timely transplantation. A lower lab MELD would prevent jeopardizing other candidates’ chances for a timely transplantation.

A candidate’s voluntarily updated lab MELD is applied in the matching.

The length of the time interval until the next scheduled recertification starts on the day of this voluntary update and is according to the regular recertification schedule.

5.5.2.2 Exceptional MELD

Recipients with an SE/NSE exceptional MELD can have their exceptional MELD not voluntarily reconfirmed. The reconfirmation of an SE/NSE exceptional MELD can only be performed within 14 days before the end of the 90-day period.

5.5.2.3 Example

<table>
<thead>
<tr>
<th>Candidate</th>
<th>Current lab MELD</th>
<th>Expiry date of current lab MELD</th>
<th>Voluntarily updated lab MELD</th>
<th>New expiry date of updated lab MELD</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8</td>
<td>x + 365 d</td>
<td>12</td>
<td>x + 90 d</td>
</tr>
<tr>
<td>B</td>
<td>15</td>
<td>x + 90 d</td>
<td>22</td>
<td>x + 30d</td>
</tr>
<tr>
<td>C</td>
<td>25</td>
<td>x + 7 d</td>
<td>26</td>
<td>x + 7 d</td>
</tr>
<tr>
<td>D</td>
<td>25</td>
<td>x + 7 d</td>
<td>22</td>
<td>x + 30 d</td>
</tr>
<tr>
<td>E</td>
<td>17</td>
<td>x + 90 d</td>
<td>10</td>
<td>x + 365 d</td>
</tr>
</tbody>
</table>
5.5.3 Not Transplantable (NT)

Recipients temporarily not transplantable (NT) should be in status NT. In NT, no MELD-specific waiting time is accumulated; previous time is retained.

5.5.3.1 Example

<table>
<thead>
<tr>
<th>Urgency changes</th>
<th>Date</th>
<th>Waiting days for matching(^{35}) (total since registration)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>MELD 14</td>
<td>01.01.2006</td>
<td>0</td>
<td>Initial registration</td>
</tr>
<tr>
<td>MELD 25</td>
<td>25.01.2006</td>
<td>24</td>
<td>Voluntary upgrade</td>
</tr>
<tr>
<td>MELD 26</td>
<td>24.02.2006</td>
<td>54</td>
<td>Scheduled recertification</td>
</tr>
<tr>
<td>NT</td>
<td>28.02.2006</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>MELD 22</td>
<td>07.03.2006</td>
<td>58</td>
<td>Reactivation after NT</td>
</tr>
<tr>
<td>MELD 26</td>
<td>14.03.2006</td>
<td>65</td>
<td>Voluntary upgrade</td>
</tr>
</tbody>
</table>

5.5.3.2 Recertification schedules while in NT

Recipients in NT fall under the rules for scheduled recertification, i.e. during NT lab MELD should be recertified. This is important as, upon reactivation, a candidate’s (un)certified lab MELD will be applied in matching procedures. Recipients in NT can also be voluntarily updated.

Once a score is updated they are stored and will initiate the start of a new recertification period depending on the height of this recertified or updated new MELD score.

Neither a scheduled recertification nor a voluntary update will result in the reactivation of a candidate from NT to T.

\(^{35}\) Number of days show difference between date of registration and date of urgency change, and in brackets the total number of days on waiting list, respectively.
5.5.3.3 Examples

5.5.3.3.1 No update or recertification during NT

Recipient spends 2 days in NT (day 3-5) of his recertification interval in MELD 25. After reactivation this MELD score is used until scheduled recertification on day 7.

5.5.3.3.2 Downgrade after missed recertification during NT

Recipient spends 12 days in NT (day 3-15). On day 7 he is not recertified and therefore downgraded to MELD 6. The new recertification interval starts on the day of the downgrade. Upon reactivation this recipient is in the MELD 6 interval, and MELD 6 will be used for this recipient.

5.5.3.3.3 Scheduled recertification during NT

Recipient spends 10 days in NT (day 3-13). On day 7 he is recertified and upgraded to lab MELD 28. The new 7-day recertification interval starts on the day of the upgrade. Upon reactivation this recipient is still in the MELD 28 interval, and MELD 28 will be used for this recipient. After reactivation, on day 7 of his new recertification schedule, he is not recertified and therefore downgraded to MELD 6. The new recertification interval starts on the day of the downgrade.

5.5.3.3.4 Voluntary update and scheduled recertification during NT

Recipient spends 10 days in NT (day 3-13). On day 5 of his MELD 25 interval he is voluntarily updated to lab MELD 28. On day 7 of his MELD 28 interval he is recertified and upgraded to lab MELD 30 with the new 7-day recertification interval starting that day. Upon reactivation this recipient is in MELD 30, which will be used for this recipient. After reactivation, on day 7 of his new recertification schedule, he is not recertified and therefore downgraded to MELD 6.
5.6 Registration of exceptional status

5.6.1 Request for exception

Recipients whose disease severity is not adequately reflected by lab MELD can, at the initiative of the transplant center, be requested for an exceptional MELD, either during the initial registration or re-registration or at any point in time thereafter.

There are two different requests, i.e. one for so-called standard exception (SE) and those for non-standard exceptions (NSE).

5.6.1.1 Standard exception (SE)

All recipients can be requested for an SE; disease and country-specific rules apply. Each country has its own list of defined SE (see Addendum):
- diseases eligible for SE;
- disease-specific SE criteria;
- initial MELD equivalent assigned at time of approval;
- time interval until upgrade and MELD equivalent upon upgrade.

Recipients must fulfill country and disease-specific criteria before the exceptional SE exceptional MELD can be approved (see Addendum A).

If the exceptional SE exceptional MELD was approved, then this status is granted for the duration of 90 days. Before the expiry of this 90-day period the SE status must be reconfirmed.

5.6.1.2 Non-standard exception (NSE)

Recipients not eligible for an SE and not well stratified by their lab MELD can request a non-standard exception (NSE). They can request this either upon initial registration or at any time after registration; disease and country-specific rules apply. NSE candidates are prospectively audited by a national audit group. Recipients must be approved by the national audit group before the NSE exceptional MELD is granted. The initial NSE exceptional MELD is for non-German countries equal to 10% equivalent of 3-month probability of death. For Germany the Initial exceptional MELD is equal to 15% equivalent of 3-month probability of death (see Addendum B).

If the exceptional NSE exceptional MELD was approved, then this status is granted for the duration of 90 days. Before the expiry of this 90-day period the NSE status must be reconfirmed.

---

NSE are only applied in Belgium, the Netherlands and Germany (as of December 3, 2007). Croatia started the NSE status as of May 17, 2016.
5.6.1.3 Recertification of lab MELD in SE/NSE recipients

Any recipient with an (N)SE exceptional MELD should have lab MELD recertified according to the recertification schedule.

5.6.1.3.1 Scheduled recertification while (non-)standard exception (SE)\textsuperscript{37}

\textit{Example 1}

SE recipient reached scheduled lab MELD recertification, lab MELD lower to previous and lower than SE exceptional MELD; SE exceptional MELD maintained.

After 90 days the recipient's SE exceptional MELD is upgraded because the SE status is reconfirmed by the center; SE is valid for another 90 days.

Transplantation with upgraded SE exceptional MELD and recertified lab MELD.

\textsuperscript{37} Same recertification rules apply for non-standard exceptions (NSE).
Example 2

SE recipient reached scheduled lab MELD recertification, lab MELD identical to previous but lower than SE exceptional MELD; SE exceptional MELD maintained.

After 90 days the recipient’s SE exceptional MELD is upgraded because the SE status is reconfirmed by the center; SE is valid for another 90 days.

Upon next scheduled lab MELD recertification no data is entered, downgrade to MELD 6.

Transplantation with upgraded SE exceptional MELD and MELD 6.

Example 3

SE recipient reached scheduled lab MELD recertification and is not recertified, i.e. downgraded to MELD 6 that is still lower than SE exceptional MELD; SE exceptional MELD maintained.

Transplantation with upgraded SE exceptional MELD and unrecertified MELD.

Example 4

SE recipient upon scheduled lab MELD recertification not recertified and downgrade to MELD 6, which is lower than SE exceptional MELD; SE exceptional MELD maintained.

After 90 days the recipient’s SE status is not confirmed by the center and the recipient is downgraded to the unrecertified lab MELD 6.
5.6.1.3.2 Voluntary update while standard exception (SE)

SE recipient is voluntarily updated before he reaches scheduled recertification. Voluntarily updated lab MELD higher than SE exceptional MELD; voluntarily updated lab MELD applied.

Upon scheduled recertification of lab MELD data is entered and the lab MELD is now lower than the SE exceptional MELD; SE exceptional MELD applied.

After 90 days the recipient’s SE status is reconfirmed by the center and the SE exceptional MELD is upgraded; SE is valid for another 90 days.

Transplantation with upgraded SE exceptional MELD and recertified lab MELD.

5.6.1.4 Reconfirmation of exceptional MELD

A recipient’s exceptional MELD has to be reconfirmed every 90 days. Both pediatric and adult recipients must adhere to the reconfirmation schedule; exception and country-specific rules apply.

Transplant centers are responsible for the data entry of their candidates’ reconfirmation of an exceptional MELD.

Any recipient with an (N)SE exceptional MELD is eligible for an upgrade every 90 days; SE/NSE- and country-specific rules apply.
5.6.1.4.1 Reconfirmation of standard exception (SE)

Candidates eligible for an SE, i.e. fulfill the SE criteria, must have their SE status reconfirmed by the center every 90 days.

Recipient with an SE exceptional MELD applied in the matching have to be reconfirmed at scheduled 90-day intervals. Centers can find information in the MELD-application.
If a recipient’s SE exceptional MELD is:
- reconfirmed, i.e. fulfills SE criteria, then the candidate maintains the SE status and the SE exceptional MELD is upgraded and the new 90-day interval immediately starts; country and disease-specific rules apply;
- not reconfirmed, i.e. the candidate does not fulfill the SE criteria, then the candidate is downgraded to his current (un)recertified lab MELD.

5.6.1.4.1.1 No data received at recertification date

If a recipient’s SE exceptional MELD is not recertified during the scheduled recertification period, then the candidate is downgraded to the candidate’s current (un)recertified lab MELD at the end of the scheduled recertification period.

5.6.1.4.2 Reconfirmation of non-standard exception (NSE)

Every NSE recipient’s exceptional MELD (except for Belgium) must be recertified by presenting the recipient again to the national audit group every 90 days.
Recipients with an NSE exceptional MELD applied in the matching have to be reconfirmed at scheduled 90-day intervals. Centers can find information in the MELD-application.

If a recipient’s NSE exceptional MELD is:
- reconfirmed by the audit group, i.e. the candidate is accepted for another NSE term, then the candidate maintains his NSE status, the NSE exceptional MELD is upgraded by 10% 3-mo probability of death and the new 90-day interval immediately starts; country specific rules apply;
- not reconfirmed by the audit group, i.e. the candidate is not accepted for another NSE term, then the candidate is downgraded to his current (un)recertified lab MELD.

5.6.1.4.2.1 No data received at recertification date

If a recipient’s NSE exceptional MELD is not recertified during the scheduled recertification period, then the candidate is downgraded to the candidate’s current (un)recertified lab MELD at the end of the scheduled recertification period.
5.7 Standard exception (SE), stratified by disease

A recipient’s urgency may not sufficiently be reflected by lab MELD. Some diseases have been identified and standardized and are called standard exceptions (SE). These diseases are comprised in a country-specific list.

To be eligible for SE, recipients must fulfill disease- and country-specific criteria. Centers must fill in an online request form, either at initial registration or at any moment thereafter. If the request is complete and criteria are met, the recipient is granted the initial SE exceptional MELD, expressed in percent [%] 3-month probability of death on the waiting list (see 5.12).

If the SE exceptional MELD, at time of matching, is:
- equal to or higher than lab MELD, then this exceptional MELD is applied.
- lower than the lab MELD, then the lab MELD is applied.

Eligible recipients have their initial SE exceptional MELD granted for 90 days; deviant disease-specific rules apply. Before the end of the 90-day period, the SE status must be reconfirmed (see 5.7.1.4.1). An SE recipient’s lab MELD recertification schedule (see 5.7.1.3) does continue despite any valid SE exceptional MELD.

Explanation of symbols used:
✓ = active field in the MELD web application, i.e. must be marked
○ = display only, cannot be marked in the MELD web application, i.e. contains additional information/guidelines

5.7.1 Biliary atresia

<table>
<thead>
<tr>
<th>Nº</th>
<th>Listing criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Recipient is &lt;2 years old</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Recipient diagnosed with biliary atresia</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

The SE is applicable for patients with ENIS diagnose C02 Congenital biliary disease - Extrahepatic biliary atresia

5.7.1.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>60% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.1.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>15% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Upon the 2nd birthday of the recipient the SE MELD will be frozen. This frozen exceptional MELD is kept until transplantation.

---

38 R-LAC 02.14, Implemented for Belgium, Croatia, Hungary, Luxembourg, the Netherlands and Slovenia as of December 15, 2014, for Austria as of September 12, 2015, for Germany as of May 16, 2017
5.7.2 Cholangiocarcinoma

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Biliary strictures in cholangiogram and biopsy and/or cytology with proof of neoplasia (aneuploidy considered to be neoplasia)</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Tumor unresectable due to technical considerations or underlying liver disease</td>
<td>✓</td>
<td>√</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Lesion (CT/MRI) &lt;3cm in diameter</td>
<td>✓</td>
<td>√</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>no intra- or extra hepatic metastases in CT/MRI (thorax, abdomen), no regional lymph nodes involved (exclusion via laparatomy)</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>Centre should operate according to ratified protocol</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

The SE is applicable for patients with ENIS diagnose E05 Cancers - Hepatic cholangiocellular carcinoma

5.7.2.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.2.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.3 Hepatic artery thrombosis

Austria, Croatia, Hungary and Slovenia:
Recipients with a hepatic artery thrombosis for which the HU status is not applicable, are eligible for a SE Hepatic artery thrombosis.

The Netherlands and Belgium:
Recipients with a hepatic artery thrombosis with severe clinical consequences for which the HU status is not applicable, are eligible for a SE Hepatic artery thrombosis.

<table>
<thead>
<tr>
<th>Nº</th>
<th>Listing criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
<th>HUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Recipient diagnosed with HAT post transplantation not fulfilling the criteria for HU</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.3.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
<th>HUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% MELD equivalent</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% MELD equivalent</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
5.7.3.2 Upgraded SE exceptional MELD

No upgrade in this SE is possible. The re-evaluation of the applicability of the SE remains at every 90 days.

5.7.4 Hepatocellular carcinoma (HCC)

Eligible Candidates: A candidate with an HCC tumor that is stage T2 may be registered at a MELD score equivalent to a 15% probability of candidate death within 3 months if the criteria listed in sections 2C-D are also met. For the purposes of this policy, stage T2 lesions are defined as
- 1 lesion >= 2 cm and <= 5 cm; OR
- 2 or 3 lesions, >= 1 cm and <= 3 cm in size.

<table>
<thead>
<tr>
<th>Nº</th>
<th>Listing criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Accepted ways of diagnosis of initial HCC (1 or more possible)</td>
<td>0</td>
<td>0</td>
<td>G</td>
<td>NL</td>
<td>SLO</td>
<td>CRO</td>
</tr>
<tr>
<td>1a</td>
<td>Biopsy</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>1b</td>
<td>AFP &gt;400 ng/ml and one positive result with hypervascularisation with imaging technique (Spiral-CT, MRI, Angiography)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>1c</td>
<td>Two positive results with hypervascularisation with imaging technique (Spiral-CT, MRI, Angiography). Two different techniques must be applied</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>2a</td>
<td>Recipient has 1 lesion &gt;= 2 cm and &lt;= 5 cm</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2b</td>
<td>Recipient has 2 or 3 lesions, &gt;= 1 cm and &lt;= 3 cm in size</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Recipient has no extrahepatic metastases</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Recipient has no macrovascular invasion</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nº</th>
<th>Additional guidelines</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>5a</td>
<td>Patient does not fulfil the Milan criteria at the time of request, but was initially diagnosed with HCC (only 1 possible)</td>
<td>Ø</td>
<td>Ø</td>
<td>G</td>
<td>NL</td>
<td>SLO</td>
<td>CRO</td>
</tr>
<tr>
<td>5b</td>
<td>inside the Milan criteria, and after treatment presenting with one lesion &lt;2 cm or no lesion at all at time of SE request, is still considered to be a transplant candidate.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5c</td>
<td>inside the Milan criteria, and fulfilling the criteria only after downstaging at time of SE request.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5c</td>
<td>outside the Milan criteria, and fulfilling the criteria only after downstaging at time of SE request; must be submitted to the national audit group.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5d</td>
<td>Outside Milan criteria, fulfilling up-to-seven criteria, PET negative</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5e</td>
<td>Participating in TOM Study40</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

39 For German criteria for the SE HCC see the Richtlinien at [http://www.bundesaerztekammer.de](http://www.bundesaerztekammer.de)
40 NSE criteria for TOM study (70112651) implemented as tickbox in SE application on November 5, 2019
Chapter 5 – ELAS

<table>
<thead>
<tr>
<th>No</th>
<th>Exclusion criterion</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recipients with lesion(s) initially, and also after downstaging, outside the Milan criteria.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

The SE is applicable for patients with ENIS diagnoses E01 Cancers - Hepatocellular carcinoma and cirrhosis, E02 Cancers - Hepatocellular carcinoma and non-cirrhotic liver and E03 Cancers - Hepatocellular carcinoma - Fibrolamellar

5.7.4.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.4.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>NL</td>
<td>SLO</td>
<td>CRO</td>
</tr>
</tbody>
</table>

5.7.4.3 Pathology reports of explanted HCC livers

Centers must send the pathology report of the explanted liver to ET. The largest dimension of each tumor must be reported (i.e., 1.5cm x 2.5cm must be reported as 2.5cm). Nodules <1cm are considered to be indeterminate and are not used in assigning priority. Reports will be collected and analyzed by the ELIAC.

5.7.4.4 On liver waiting list for at least 6 months (Netherlands)

In the Netherlands, the recipient has to be on the Liver waiting list (status T, NT or HU) for at least 6 months when requesting this Standard Exception (SE). The recipient is not granted for this SE if the status is continuously NT for a period of 6 months or more. If the recipient is registered with an active status (T or HU) and becomes intermittently NT (less than 6 months), the SE can be granted.

5.7.5 Non-metastatic hepatoblastoma

The SE for non-metastatic hepatoblastoma is no longer applicable as of May 16, 2017. A request for HU status can be done directly via the HU request form.
5.7.6 Cystic fibrosis

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Liver transplantation, FEV1 &lt;40%</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Liver transplantation, FEV1 &gt;40%</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Liver transplantation with FEV1 &gt;40%, otherwise combined liver-lung transplantation</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.7.6.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.6.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.7 Familial Amyloidotic Polyneuropathy (FAP)

<table>
<thead>
<tr>
<th>Nº</th>
<th>exception MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Biopsy with proof of amyloid deposits in an organ</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Proof of TTR gene mutation (DNA analysis or mass spectrometry (Val30Met vs. Non-Val30Met))</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Modified Polyneuropathy Disability (PND) Score &lt;IIIb</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✔</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Modified BMI (mBMI) &gt;700 [mBMI=(weight [kg]/length [m])²*S-Albumin [g/L]]</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nº</th>
<th>Additional guidelines</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or more applicable</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>In case of liver transplantation without heart transplantation: no life-threatening rhythm disorders and/or cardiomyopathy with EF&lt;40% ± NYHA II symptoms</td>
<td>O</td>
<td></td>
<td>✓</td>
<td>O</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>6</td>
<td>In case of cardiac involvement and left ventricular wall thickness &gt;12 mm combined heart-liver transplantation should be evaluated</td>
<td>O</td>
<td></td>
<td>✓</td>
<td>O</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>7</td>
<td>Modified Polyneuropathy Disability (PND) Score &lt;IIIb</td>
<td></td>
<td></td>
<td>✓</td>
<td>O</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>8</td>
<td>Modified BMI (mBMI) &gt;700 [mBMI=(weight [kg]/length [m])²*S-Albumin [g/L]]</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>O</td>
<td>✓</td>
</tr>
<tr>
<td>9</td>
<td>FAP liver should, whenever possible, be used for Domino liver transplantation</td>
<td>O</td>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>✓</td>
</tr>
</tbody>
</table>

The SE is applicable for patients with ENIS diagnose F07 Metabolic diseases - Familial amyloidotic polyneuropathy

5.7.7.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.7.7.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.7.3 Modified Polyneuropathy Disability Score (PND)

A modified Polyneuropathy Disability (PND)\textsuperscript{41} score is used to evaluate peripheral sensory and motor disturbances as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>sensory disturbances in limbs without motor impairment</td>
</tr>
<tr>
<td>II</td>
<td>difficulty walking without the need of a walking aid</td>
</tr>
<tr>
<td>IIIa</td>
<td>one stick or one crutch required for walking</td>
</tr>
<tr>
<td>IIIb</td>
<td>two sticks or two crutches needed</td>
</tr>
<tr>
<td>IV</td>
<td>wheelchair required or patient confined to bed</td>
</tr>
</tbody>
</table>

5.7.7.4 Modified Body Mass Index (mBMI)

A modified Body Mass Index (mBMI) score is calculated as follows:

\[
mBMI = \left( \frac{\text{weight} \ [\text{kg}]}{\text{length} \ [\text{m}]^2} \right) \times \text{S-Albumin} \ [\text{g/L}]\]

5.7.8 Primary hyperoxaluria Type 1 (PH1)

<table>
<thead>
<tr>
<th>No</th>
<th>Listing criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AGT deficit proven in liver biopsy</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>or phenotypically and confirmed by genetic analysis showing a homozygous or heterozygous mutation for primary hyperoxaluria type 1\textsuperscript{42}</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>exceptional MELD criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a</td>
<td>Preemptive liver transplantation, no renal injury</td>
</tr>
<tr>
<td>3b</td>
<td>Combined liver+kidney transplantation, no end-stage renal disease</td>
</tr>
<tr>
<td>3c</td>
<td>Recipients ≥1 yr and combined liver+kidney transplantation with end-stage renal disease</td>
</tr>
<tr>
<td>3d</td>
<td>Recipients &lt;1 yr and combined liver+kidney transplantation with end-stage renal insufficiency and renal replacement therapy.</td>
</tr>
</tbody>
</table>

The SE is applicable for patients with ENIS diagnose F08 Metabolic diseases - Primary hyperoxaluria


\textsuperscript{42} R-LAC 03.13, Implemented for Belgium, Croatia, Hungary, Luxembourg, the Netherlands, Germany and Slovenia as of December 15, 2014, for Austria as of September 12, 2015. Heterozygous mutation added for Germany on request of the BAK AG Leber, May 17, 2016. For other countries on September 24, 2019
5.7.8.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a = 10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3b = 10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3c = 15% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3c = 10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3d = MELD 40</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.8.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a = 10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3b = 10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3c = 15% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3c = 10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

If a pediatric recipient reaches the age threshold as mentioned above, the exceptional MELD is frozen at the time the recipient reaches the age threshold. This frozen exceptional MELD is kept until transplantation.

5.7.9 Polycystic liver disease (PLD)

<table>
<thead>
<tr>
<th>Nº</th>
<th>Listing criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Massive PLD (total Cysts/Parenchyma &gt;1) and complication(s), that can exclusively be treated by liver transplantation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Clinically apparent liver disease due to massive PLD, incl. weight loss, ascites, portal hypertension</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Failure of non-transplant related interventions or contraindications for further non-transplant related interventions</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Contraindications for non-transplant related interventions, fulfilling criteria 1 and 2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>Recipient has been listed actively on the liver waiting list for ≥365 days and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td></td>
</tr>
</tbody>
</table>
The SE is applicable for patients with ENIS diagnose H05 Benign liver tumors or Polycystic disease

5.7.9.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.9.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.10 Urea-cycle disorder/organic acidemia

The SE for urea-cycle disorder/organic acidemia is no longer applicable as of September 24, 2019. A request for HU status can be done directly via the HU request form.

5.7.11 Hepato-pulmonary syndrome (HPS)

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Proof of liver disease</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>PaO2 &lt;60 mmHg at rest (sitting/ supine ambient air)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Proof of intrapulmonary shunt and exclusion of intracardiac shunts by contrast-enhanced echocardiography</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>No alternative pulmonary disease to explain hypoxemia</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### 5.7.11.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>15% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.7.11.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.7.12 Porto-pulmonary hypertension (PoPH)

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Proof of underlying liver disease</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>PAP: 25 &lt; PAPm &lt; 35 mmHg (with or without therapy)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Pulmonary vascular resistance (PVR) ≥240 dyn.s.cm⁻⁵</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Pulmonary capillary wedge pressure (PCWP) ≤15 mmHg</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>All mentioned values have to be documented by right heart catheterization</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.7.12.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>25% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.7.12.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.7.13 Persistent hepatic dysfunction (including “small for size”-syndrome) with indication for retransplantation This SE replaces the current SE “small for size syndrome”

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Criterion 1 must be met and 2 or more other criteria of the criteria 2 - 5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Less than 3 months after liver transplantation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Hyperbilirubinemia ≥10 mg/dl, no proof of rejection/biliary duct obstruction and/or</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3a</td>
<td>Non- Anastomotic bile duct strictures documented by MRI or ERCP</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3b</td>
<td>Bile duct ischemia / ITBL (Non-anastomotic biliary strictures documented by MRI or ERCP) and/or</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>INR ≥ 1.5 and/or</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>Ascites and/or</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

---

43 LOL conference September 12, 2008: this SE will be audited as a NSE (as of 22-04-2009).
5.7.13.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Match MELD corresponding to a 3-months mortality calculated as the sum of:</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>a) 3-month mortality on the Lab MELD plus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) 20% 3-months mortality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.7.13.2 Upgraded SE exceptional MELD

No upgrade after 90 days. The SE MELD score will be changed whenever a new Lab MELD score is inserted into the system.

5.7.14 Hereditary hemorrhagic teleangiecetasia (Rendu-Osler-Weber-Syndrome)

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>All listing criteria have to be met</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NL</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Symptomatic involvement of the liver (shunts, abscess, destructive cholangitis, liver necrosis)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>High output congestive heart failure</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Cardiology report stating that high output congestive heart failure is primarily due to liver involvement and can therefore be cured by liver transplantation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.14.1 Initial SE exceptional MELD

15% MELD equivalent

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>15% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>NL</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.14.2 Upgraded SE exceptional MELD

10% MELD equivalent

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>NL</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.14.3 Initial SE exceptional MELD in case of acute liver failure due to hemorrhagic teleangiecetasia (Rendu-Osler-Weber-syndrome)

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>MELD 40 (no HU status)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>NL</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.15 Hepatic hemangioendothelioma

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>All listing criteria have to be met</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NL</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Histopathology evidence for hepatic hemangioendothelioma: limited cell density positive immunohistochemical staining of factor-VIII-related antigens on endothelial cells.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>NL</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

44 LOL conference September 12, 2008: this SE will be audited as a NSE (as of 20-09-2008).
2 Patient has to be on the liver transplant waiting list for at least one year

### 5.7.15.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>15% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.7.15.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>G</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Pathology reports of explanted livers**
Centers must send the pathology report of the explanted liver to ET. Reports will be collected and analyzed by the ELIAC.

### 5.7.16 Biliary sepsis

<table>
<thead>
<tr>
<th>Nº</th>
<th>exception MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Biliary sepsis can only be treated by liver transplantation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All listing criteria have to be met</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions)</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Septicemia in spite of antibiotic therapy (i.e. source of infection cannot be eliminated)</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

### 5.7.16.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Match MELD corresponding to a 3- months mortality calculated as the sum of:</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>a) 3-month mortality on the Lab MELD plus</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>b) 20% 3-months mortality.</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 5.7.16.2 Upgraded SE exceptional MELD

No upgrade after 90 days. The SE MELD score will be changed whenever a new Lab MELD score is inserted into the system.

### 5.7.17 Biliary sepsis/ Secondary sclerosing cholangitis (SSC) Germany

<table>
<thead>
<tr>
<th>Nº</th>
<th>exception MELD criteria</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Biliary sepsis can only be treated by liver transplantation</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>All listing criteria have to be met</td>
<td>O</td>
</tr>
<tr>
<td>1</td>
<td>At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions)</td>
<td>✓</td>
</tr>
</tbody>
</table>

---

46 LOL conference September 12, 2008: this SE will be audited as a NSE (as of 20-09-2008). Initial exceptional MELD points will be calculated as the Initial SE exceptional MELD.
2. Septicemia in spite of antibiotic therapy (i.e. source of infection cannot be eliminated)

5.7.17.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Match MELD corresponding to a 3-months mortality calculated as the sum of:</td>
<td></td>
</tr>
<tr>
<td>c) 3-month mortality on the Lab MELD plus</td>
<td>✓</td>
</tr>
<tr>
<td>d) 30% 3-months mortality.</td>
<td></td>
</tr>
</tbody>
</table>

5.7.17.2 Note
Included are complications due to liver transplantation such as ITBL, ischemia/vascular thrombosis, bile duct necrosis, diffuse bile duct damage, vanishing bile duct syndrome.

5.7.17.3 Upgraded SE exceptional MELD
No upgrade after 90 days. The SE MELD score will be changed whenever a new Lab MELD score is inserted into the system.

5.7.18 Primary sclerosing cholangitis (PSC)

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>A</th>
<th>B/L</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PSC has to be diagnosed according to standard radiology criteria</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td></td>
<td>At least two listing criteria have to be met</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>1</td>
<td>At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions)</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Splenomegaly &gt; 12 cm</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Body Mass Index-Reduction &gt; 10% within 12 months.</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.7.18.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>A</th>
<th>B/L</th>
<th>NL</th>
<th>SLO</th>
<th>CRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Match MELD corresponding to a 3-months mortality calculated as the sum of:</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) 3-month mortality on the Lab MELD plus</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) 20% 3-months mortality.</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.7.18.2 Upgraded SE exceptional MELD
No upgrade after 90 days. The SE MELD score will be changed whenever a new Lab MELD score is inserted into the system.

---

47 LOL conference September 12, 2008: this SE will be audited as a NSE (as of 20-09-2008). Initial exceptional MELD points will be calculated as the Initial SE exceptional MELD.
5.7.19 Primary sclerosing cholangitis (PSC) Germany

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>PSC has to be diagnosed according to standard radiology criteria</td>
<td>O</td>
</tr>
<tr>
<td>1</td>
<td>At least two listing criteria have to be met</td>
<td>O</td>
</tr>
<tr>
<td>2</td>
<td>At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions)</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Documented development of dominant bile duct stenosis.</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Body Mass Index-Reduction &gt; 10% within 12 months.</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.19.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>15% MELD equivalent</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.19.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.20 Neuroendocrine tumors (NET) Germany

<table>
<thead>
<tr>
<th>Nº</th>
<th>exceptional MELD criteria</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>All listing criteria have to be met</td>
<td>O</td>
</tr>
<tr>
<td>1</td>
<td>Non-resectable^a highly differentiated gastro-entero-pancreatic neuroendocrine tumor (GEP-NET) liver metastases^b with porto-venous drainage^c confined to the liver exclusively^d</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Stable disease since &gt;6 months after resection of the primary tumor and of possible extra-hepatic metastases before requesting SE.</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Obligatory audit and decision in the center’s tumor board.</td>
<td>✓</td>
</tr>
</tbody>
</table>

Note:
- Non-resectable^a generally diagnosed by multiphase CT or liver specific CE MRT or other standard of care diagnostic procedure
- Highly differentiated gastro-entero-pancreatic neuroendocrine tumor (GEP-NET) liver metastases^b: Ki-67/MiB status necessary.
- with porto-venous drainage^c: patients with NET metastases originating from the distal rectum, esophagus, lung, adrenal, and thyroid are excluded from SE
- confined to the liver exclusively^d: exclusion of extra-hepatic metastases in solid organs (lung, bones) via PET or Somatostatin receptor scintigraphy or DOTA/DOTATOC scintigraphy, or methods according to the latest scientific guidelines defined by the transplant center’s tumor board.

The SE is applicable for patients with ENIS diagnose E10 Cancers - Secondary liver tumors - Other neuroendocrine

---

^a Implemented June 20, 2017. More info can be found in the Richtlinien at [http://www.bundesaerztekammer.de](http://www.bundesaerztekammer.de)

---
5.7.20.1 Initial SE exceptional MELD

<table>
<thead>
<tr>
<th>Initial SE exceptional MELD</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>15% MELD equivalent</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.7.20.2 Upgraded SE exceptional MELD

<table>
<thead>
<tr>
<th>Upgrade SE exceptional MELD</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% MELD equivalent</td>
<td>✓</td>
</tr>
</tbody>
</table>

Recertification must be done every 3 months according to above mentioned diagnostic methods approved by the tumor board of the center.

Appearance of extrahepatic progression, i.e. lymph node metastases leads to delisting but re-listing is possible after a 6 month interval of extrahepatic freedom of cancer.

Extrahepatic metastases in solid organs lead to permanent exclusion from transplantation.
5.8 Prospective audit for exceptional MELD

Some diseases have been identified as so-called standard exceptions (SE). Nonetheless, recipients not eligible for an SE can be presented to a national audit group for prospective evaluation in case:
- SE criteria ask for an audit;
- the recipient does not fulfill SE criteria;
- the recipient has a disease not listed in the SE list, i.e. a non-standard exception (NSE).

In order to be eligible for an (NSE) status under the above mentioned conditions, recipients must be prospectively evaluated by a national audit. Centers must fill in an online form stating their motivation why this recipient should receive an exceptional NSE status, either at the initial registration or at any moment thereafter. If eligibility is checked and granted, the recipient receives an initial NSE exceptional MELD, expressed in percent [%] 3-month probability of death on the waiting list.

If the disease-specific exceptional MELD is equal to or higher than the lab MELD, then this exceptional MELD will be used in the matching. If the disease-specific exceptional MELD is lower than the lab MELD, then the lab MELD will be used in the matching.

Eligible recipients have their initial NSE exceptional MELD granted for 90 days. Before the end of the 90-day period, the NSE status must be reconfirmed by presenting the recipient again to the national audit group (see 5.7.1.4.2). An NSE recipient’s lab MELD recertification, either scheduled or voluntary (see 5.7.1.3) does continue despite any NSE exceptional MELD applied.

5.8.1 Prospective audits for non-standard exception (NSE)

An ET country can establish a national audit. A national audit group has the task to prospectively evaluate initial and reconfirmation (NSE) requests. The result of the audit is reported back to ET. If the result is positive, then the recipient is granted the (NSE) status in ENIS, allowing him to receive the country-specific initial (NSE) exceptional MELD.

The result of the audit is reported back to ET. If the result is positive, then the recipient is granted an upgrade of his previous (initial) exceptional MELD in a defined step; country-specific rules apply.

A NSE status can be requested via the MELD-application on the membersite.
5.8.1.1 Belgium

The corresponding (N)SE request must be completed in the MELD-application on the membersite by the requesting center on all items. The recipient then receives the pending status. The request will be forwarded to the Be-LIAC auditors from outside the requesting center automatically. In a tie situation, a third Be-LIAC member will decide on the approval or denial of the (N)SE request (this is also part of the automatic process).

Upon approval of the audit the initial (N)SE exceptional MELD or an upgrade, respectively, is granted and applied accordingly in ENIS.

All results from (N)SE audits are sent to the Be-LIAC on a regular basis for further analysis.

A remote center cannot assign any (N)SE exceptional MELD. A NSE exceptional MELD is reconfirmed automatically. However, the transplant center should remove the recipient from the (N)SE status if the clinical status of a patient improves or worsens beyond the (N)SE criteria.

5.8.1.2 The Netherlands

The corresponding (N)SE request must be completed in the MELD-application by the requesting center on all items. The recipient then receives the pending status. The request will be forwarded to the auditors from outside the requesting center automatically. The audit group comprises auditors from all Dutch liver transplant centers (Groningen (NGRTP), Leiden (NLBTP), Rotterdam (NRDTP)).

Upon approval of the audit the initial (N)SE exceptional MELD or an upgrade, respectively, is granted and applied accordingly in ENIS.

All results from NSE audits are sent to the Landelijk Overleg Levertransplantatie (LOL) on a regular basis for further analysis.

A remote center cannot assign any (N)SE exceptional MELD. However, the transplant center should remove the recipient from the (N)SE status if the clinical status of a patient improves or worsens beyond the (N)SE criteria.

---

50 See Meld Audit manual on the Eurotransplant Membersite.
5.8.1.3 Germany

The corresponding (N)SE request must be completed in the MELD web application by the requesting center on all items. The recipient then receives the pending status. The ET duty desk will then forward the request to two auditors from outside the requesting center for evaluation. In a tie situation, a third auditor will decide on the approval or denial of the (N)SE request. Upon approval of the audit the initial (N)SE exceptional MELD or an upgrade, respectively, is granted and applied accordingly in ENIS.

All results from (N)SE audits are sent to the German auditors on a regular basis for further analysis.

A remote center cannot assign any (N)SE exceptional MELD. However, the transplant center should remove the recipient from the (N)SE status if the clinical status of a patient improves or worsens beyond the (N)SE criteria.

5.8.1.4 Croatia

The corresponding (N)SE request must be completed in the MELD-application by the requesting center on all items. The recipient then receives the pending status. The request will be forwarded to the auditors from outside the requesting center automatically. The audit group comprises auditors from all Croatian liver transplant centers (Zagreb University (CZATP) and Zagreb Merkur (ZCMT)).

Upon approval of the audit the initial (N)SE exceptional MELD or an upgrade, respectively, is granted and applied accordingly in ENIS.

5.8.2 Prospective audits for standard exception (SE)

An SE may require an audit by the national audit group. The center must first access the MELD web application to request the SE and the recipient is assigned the pending status. The center then sends the SE request to the national audit group. After receiving a vote from all auditors, the requesting transplant center sends the SE request completed on all items with a confirmation concerning its approval or denial, respectively, to the ET duty desk.

In case of a reconfirmation of an SE recipient the transplant center, that was sent a notification for a reconfirmation, must first access the MELD web application and press the reconfirm button for this recipient. The recipient then receives the pending status.

Upon approval of the audit the initial NSE exceptional MELD or an upgrade, respectively, is granted and applied accordingly in ENIS.

All results from SE audits are sent to national authorities on a regular basis for further analyses.

A remote center cannot assign an SE exceptional MELD. However, the transplant center should remove the recipient from the SE status if the clinical status of a patient improves or worsens beyond the SE criteria.

52 The Audit group comprises auditors from several centers.
53 Since May 17, 2016
54 Currently this concerns only HCC cases in Belgium and the Netherlands; country and disease-specific SE rules apply.
5.8.3 Deviant national regulations

Countries can decide whether to adopt the NSE procedure or not. The following countries have no NSE procedure, i.e. a national audit group:
- Austria
- Hungary
- Slovenia

NSE can therefore not be requested in these countries.
## 5.9 Addendum A - standard exception lists

### 5.9.1 Austria

<table>
<thead>
<tr>
<th>Disease</th>
<th>Criteria</th>
<th>Initial exceptional MELD</th>
<th>Upgrade in 90-day steps</th>
</tr>
</thead>
</table>
| Biliary atresia             | Exceptional MELD criteria:  
  1. Recipient is <2 years old  
  2. Recipient diagnosed with biliary atresia                                                                                                     | 60%                       | +15%                     |
| Cholangiocarcinoma          | Exceptional MELD criteria:  
  1. Biliary strictures in cholangiogram and biopsy and/or cytology with proof of neoplasia (aneuploidy considered to be neoplasia);  
  2. Tumor unresectable due to technical considerations or underlying liver disease;  
  3. Lesion (CT/MRI) <3cm in diameter;  
  4. no intra- or extrahepatic metastases in CT/MRI (thorax, abdomen), no regional lymph nodes involved (exclusion via laparatomy);  
  5. Centre should operate according to ratified protocol.                                                                                       | 10%                       | +10%                     |
| Cystic fibrosis             | Exceptional MELD criteria:  
  Liver transplantation, FEV1 <40%                                                                                                               | 10%                       | +10%                     |
| Familial Amyloidotic Polyneuropathy (FAP) | Exceptional MELD criteria:  
  1. Biopsy with proof of amyloid deposits in an organ;  
  2. Proof of TTR gene mutation (DNA analysis or mass spectrometry (Val30Met vs. Non-Val30Met));  
  3. Modified Polyneuropathy Disability (PND) Score <IIb;  
  4. Modified BMI (mBMI) >700 [mBMI=(weight [kg]/length [m]^2)*S-Albumin [g/L]];                                                                 | 15%                       | +10%                     |
| Hepato-pulmonary syndrome (HPS) | Exceptional MELD-criteria:  
  1. Proof of liver disease;  
  2. PaO2 <60 mmHg at rest (sitting/ supine ambient air);  
  3. Proof of intrapulmonary shunt and exclusion of intracardiac shunts by contrast-enhanced echocardiography;  
  4. No alternative pulmonary disease to explain hypoxemia.                                                                                      | 15%                       | +10%                     |
| Porto-pulmonary hypertension (PoPH) | Exceptional MELD-criteria:  
  1. Proof of underlying liver disease;  
  2. PAP: 25 < PAPm < 35 mmHg (with or without therapy);  
  3. Pulmonary vascular resistance (PVR) ≥240 dyn.s.cm^-5;  
  4. Pulmonary capillary wedge pressure (PCWP) ≤15 mmHg.                                                                                       | 25%                       | +10%                     |
| Primary Hyperoxaluria Type 1 (PH1) | Listing criterion:  
  AGT deficit proven in liver biopsy or phenotypically and confirmed by genetic analysis showing a homozygous                                                                                       |                           |                          |

List approved by Austrian ELIAC representative (R. Steininger).

---

55 List approved by Austrian ELIAC representative (R. Steininger).
<table>
<thead>
<tr>
<th>Disease</th>
<th>Listing criteria</th>
<th>Exceptional MELD criteria (1 criterion applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Oxalosis)</td>
<td>or heterozygous mutation for primary hyperoxaluria type 1(^6)</td>
<td>10% + 10%</td>
</tr>
<tr>
<td></td>
<td><strong>Exceptional MELD-criteria (1 criterion applicable):</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preemptive liver transplantation, no renal injury.</td>
<td>10% + 10%</td>
</tr>
<tr>
<td></td>
<td>Combined liver+kidney transplantation, no end-stage renal disease.</td>
<td>10% + 10%</td>
</tr>
<tr>
<td></td>
<td>Recipients ≥1 yr and combined liver+kidney transplantation with end-stage renal disease.</td>
<td>15% + 10%</td>
</tr>
<tr>
<td></td>
<td>Recipients &lt;1 yr and combined liver+kidney transplantation.</td>
<td>MELD 40</td>
</tr>
<tr>
<td>Polycystic liver disease (PLD)</td>
<td><strong>Listing criteria:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Massive PLD (total Cysts/Parenchyma &gt;1) and complication(s), that can exclusively be treated by liver transplantation;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. clinically apparent liver disease due to massive PLD, incl. weight loss, ascites, portal hypertension;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Failure of non-transplant related interventions or contraindications for further non-transplant related interventions;</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Exceptional MELD criteria (1 or more in combination with all listing criteria):</strong></td>
<td>10% + 10%</td>
</tr>
<tr>
<td></td>
<td>1. Ascites or variceal bleeding;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Budd-Chiari-like-Syndrome with hepato-venous outflow obstruction due to cysts (CT/MRI, Venography);</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Ascites complicating cyst fenestration procedures;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Severe malnutrition (decreased mid-arm circumference in the non-dominant arm: men &lt;23.8 cm, women: &lt;23.1 cm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Dialysis dependency in combination with one criterion (1-4);</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Creatinine-Clearance 20-30ml/min in combination with one criterion (1-5).</td>
<td></td>
</tr>
<tr>
<td>Hepatocellular Carcinoma (HCC)</td>
<td><strong>Exceptional MELD criteria:</strong></td>
<td>15% + 10%</td>
</tr>
<tr>
<td></td>
<td>Recipient has 1 lesion ≥ 2 cm and ≤ 5cm or 2 or 3 lesions ≥ 1cm and ≤ 3cm in size, no extrahepatic metastases and no macrovascular invasion (Milan criteria).</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Accepted ways of diagnosis of HCC (at least 1):</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Biopsy, or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. AFP &gt;400 ng/ml and one positive result with hypervascularisation with imaging technique (Spiral-CT, MRI), or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Two positive results with hypervascularisation with imaging technique (Spiral-CT, MRI). Two different techniques must be applied.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Additional guidelines:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Recipients must fulfill the Milan criteria at the time of upgrade in 3-monthly steps.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Recipients initially:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- inside the Milan criteria and, after treatment with one lesion &lt;2cm or no lesion at all time of request, are still considered to be transplant candidates.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- outside the Milan criteria and lesion(s) exceeding the Milan criteria at time of request, are to be submitted to the national audit group.</td>
<td></td>
</tr>
</tbody>
</table>

---

56 R-LAC 03.13 regarding genetic analysis implemented for Belgium, Croatia, Hungary, Luxembourg, the Netherlands and Slovenia as of December 15, 2014, for Austria as of September 12, 2015
<table>
<thead>
<tr>
<th>Exclusion criterion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recipients with lesion(s) initially, and also after downstaging, outside the Milan criteria.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
<th>Match MELD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-metastatic hepatoblastoma</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
<td></td>
</tr>
<tr>
<td>Urea cycle disorder/organic acidemia</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
<td></td>
</tr>
<tr>
<td>Hepatic artery thrombosis</td>
<td>Recipient diagnosed with HAT post transplantation not fulfilling the criteria for HU</td>
<td>100%</td>
</tr>
</tbody>
</table>
| Persistent hepatic dysfunction (including “small for size”-syndrome) with indication for retransplantation. This SE replaces the current SE “small for size syndrome”. | **Exceptional MELD criteria (≥3 criteria):**  
1. Less than 3 months after liver transplantation.;  
2. Hyperbilirubinemia ≥10 mg/dl, no proof of rejection/biliary duct obstruction;  
3. Non-anastomotic bile duct strictures documented by MRI or ERCP.;  
4. INR ≥ 1.5;  
5. Ascites; | Match MELD corresponding to a 3-months mortality calculated as the sum of:  
1) 3-month mortality on the Lab MELD plus  
2) 20% 3-months mortality |
| Hereditary hemorrhagic teleangiectasia (Rendu-Osler-Weber-Syndrome) | **Exceptional MELD criteria (All listing criteria have to be met):**  
1. Symptomatic involvement of the liver (shunts, abscess, destructive cholangitis, liver necrosis)  
2. High output congestive heart failure;  
3. Cardiology report stating that high output congestive heart failure is primarily due to liver involvement and can therefore be cured by liver transplantation  
4. Acute liver failure due to hemorrhagic teleangiectasia (Rendu-Osler-Weber-syndrome) | 15%        | +10%       |
| Hepatic hemangioendothelioma                   | **Exceptional MELD criteria (All listing criteria have to be met):**  
1. Histopathology evidence for hepatic hemangioendothelioma: limited cell density positive immunohistochemical staining of factor-VIII-related antigens on endothelial cells. | 15%        | +10%       |
| Additional guidelines:                        | 1. Patient has to be on the liver transplant waiting list for at least one year.            |            |
### 5.9.2 Slovenia

<table>
<thead>
<tr>
<th>Disease</th>
<th>Criteria</th>
<th>Initial exceptional MELD</th>
<th>Upgrade in 90-day steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biliary atresia</td>
<td><strong>Exceptional MELD criteria:</strong>&lt;br&gt;1. Recipient is &lt;2 years old&lt;br&gt;2. Recipient diagnosed with biliary atresia</td>
<td>60%</td>
<td>+15%</td>
</tr>
<tr>
<td>Cholangiocarcinoma</td>
<td><strong>Exceptional MELD criteria:</strong>&lt;br&gt;1. Biliary strictures in cholangiogram and biopsy and/or cytology with proof of neoplasia (aneuploidy considered to be neoplasia);&lt;br&gt;2. Tumor unresectable due to technical considerations or underlying liver disease;&lt;br&gt;3. Lesion (CT/MRI) &lt;3cm in diameter;&lt;br&gt;4. no intra- or extrahepatic metastases in CT/MRI (thorax, abdomen), no regional lymph nodes involved (exclusion via laparotomy);&lt;br&gt;5. Centre should operate according to ratified protocol.</td>
<td>10%</td>
<td>+10%</td>
</tr>
<tr>
<td>Cystic fibrosis</td>
<td><strong>Exceptional MELD criteria:</strong>&lt;br&gt;Liver transplantation, FEV1 &lt;40%</td>
<td>10%</td>
<td>+ 10%</td>
</tr>
<tr>
<td>Familial Amyloidotic Polyneuropathy (FAP)</td>
<td><strong>Exceptional MELD criteria:</strong>&lt;br&gt;1. Biopsy with proof of amyloid deposits in an organ;&lt;br&gt;2. Proof of TTR gene mutation (DNA analysis or mass spectrometry (Val30Met vs. Non-Val30Met));&lt;br&gt;3. Modified Polyneuropathy Disability (PND) Score &lt;IIb;&lt;br&gt;4. Modified BMI (mBMI) &gt;700 [mBMI=(weight [kg]/length [m]^2) * S-Albumin [g/L]];</td>
<td>15%</td>
<td>+ 10%</td>
</tr>
<tr>
<td>Hepato-pulmonary syndrome (HPS)</td>
<td><strong>Exceptional MELD criteria:</strong>&lt;br&gt;1. Proof of liver disease;&lt;br&gt;2. PaO2 &lt;60 mmHg at rest (sitting/ supine ambient air);&lt;br&gt;3. Proof of intrapulmonary shunt and exclusion of intracardiac shunts by contrast-enhanced echocardiography;&lt;br&gt;4. No alternative pulmonary disease to explain hypoxemia.</td>
<td>15%</td>
<td>+10%</td>
</tr>
<tr>
<td>Porto-pulmonary hypertension (PoPH)</td>
<td><strong>Exceptional MELD criteria:</strong>&lt;br&gt;1. Proof of underlying liver disease;&lt;br&gt;2. PAP: 25 &lt; PAPm &lt; 35 mmHg (with or without therapy);&lt;br&gt;3. Pulmonary vascular resistance (PVR) ≥240 dyn.s.cm(^{-5});&lt;br&gt;4. Pulmonary capillary wedge pressure (PCWP) ≤15 mmHg.&lt;br&gt;5. All mentioned values have to be documented by right heart catheterization.</td>
<td>25%</td>
<td>+ 10%</td>
</tr>
<tr>
<td>Primary Hyperoxaluria Type 1 (PH1) (Oxalosis)</td>
<td><strong>Listing criterion:</strong>&lt;br&gt;AGT deficit proven in liver biopsy or phenotypically and confirmed by genetic analysis showing a homozygous or heterozygous mutation for primary hyperoxaluria type 1.&lt;br&gt;<strong>exceptional MELD criteria (1 criterion applicable):</strong></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

57 List approved by Slovenian ELIAC representative (S. Markovicz, Sojar).<br>58 R-LAC 03.13 regarding genetic analysis implemented for Belgium, Croatia, Hungary, Luxembourg, the Netherlands and Slovenia as of December 15, 2014, for Austria as of September 12, 2015.
<table>
<thead>
<tr>
<th>Procedure</th>
<th>Percentage</th>
<th>Exception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preemptive liver transplantation, no renal injury.</td>
<td>10%</td>
<td>+ 10%</td>
</tr>
<tr>
<td>Combined liver+kidney transplantation, no end-stage renal disease.</td>
<td>10%</td>
<td>+ 10%</td>
</tr>
<tr>
<td>Recipients ≥1 yr and combined liver+kidney transplantation with end-stage renal disease.</td>
<td>15%</td>
<td>+ 10%</td>
</tr>
<tr>
<td>Recipients &lt;1 yr and combined liver+kidney transplantation.</td>
<td>MELD 40</td>
<td></td>
</tr>
</tbody>
</table>

### Polycystic Liver Disease (PLD)

**Listing criteria:**
1. Massive PLD (total Cysts/Parenchyma >1) and complication(s), that can exclusively be treated by liver transplantation;
2. Clinically apparent liver disease due to massive PLD, incl. weight loss, ascites, portal hypertension;
3. Failure of non-transplant related interventions or contraindications for further non-transplant related interventions;

**Exceptional MELD criteria (1 or more in combination with all listing criteria):**
1. Ascites or variceal bleeding;
2. Budd-Chiari-like-syndrome with hepato-venous outflow obstruction due to cysts (CT/MRI, Venography);
3. Ascites complicating cyst fenestration procedures;
4. Severe malnutrition (decreased mid-arm circumference in the non-dominant arm: men <23.8 cm, women: <23.1 cm)
5. Dialysis dependency in combination with one criterion (1-4);
6. Creatinine-Clearance 20-30ml/min in combination with one criterion (1-5).

### Hepatocellular Carcinoma (HCC)

**Listing criteria:**
Recipient has 1 lesion ≥ 2 cm and ≤ 5cm or 2 or 3 lesions ≥ 1cm and ≤ 3cm in size, no extrahepatic metastases and no macrovascular invasion (Milan criteria).

**Accepted ways of diagnosis of HCC (at least 1):**
1. Biopsy, or
2. AFP >400 ng/ml and one positive result with hypervascularisation with imaging technique (Spiral-CT, MRI), or
3. Two positive results with hypervascularisation with imaging technique (Spiral-CT, MRI). Two different techniques must be applied.

**Additional guidelines:**
1. Recipients must fulfill the Milan criteria at the time of upgrade in 3-monthly steps.
2. Recipients initially:
   - inside the Milan criteria and, after treatment with one lesion <2cm or no lesion at all at time of request, are still considered to be transplant candidates.
   - inside the Milan criteria and lesion(s) exceeding the Milan criteria at time of request, are to be submitted to the national audit group.
   - outside the Milan criteria and fulfilling the criteria only after downstaging at time of request, are to be submitted to the national audit group.

**Exclusion criterion:**
Recipients with lesion(s) initially, and also after downstaging, outside the Milan criteria.
<table>
<thead>
<tr>
<th>Condition</th>
<th>Criteria</th>
<th>MELD Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-metastatic hepatoblastoma</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
<td></td>
</tr>
<tr>
<td>Urea cycle disorder/organic acidemia</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
<td></td>
</tr>
<tr>
<td>Hepatic artery thrombosis</td>
<td>Recipient diagnosed with HAT post transplantation not fulfilling the criteria for HU</td>
<td>100%</td>
</tr>
</tbody>
</table>
| Persistent hepatic dysfunction (including “small for size” syndrome) with indication for retransplantation. This SE replaces the current SE “small for size syndrome” | Exceptional MELD criteria (≥3 criteria):  
1. Less than 3 months after liver transplantation;  
2. Hyperbilirubinemia ≥10 mg/dl, no proof of rejection/biliary duct obstruction;  
3. Non-anastomotic bile duct strictures documented by MRI or ERCP;  
4. INR ≥ 1.5;  
5. Ascites; | Match MELD corresponding to a 3-months mortality calculated as the sum of:  
a) 3-month mortality on the Lab MELD plus;  
b) 20% 3-months mortality |
| Hereditary hemorrhagic teleangiectasia (Rendu-Osler-Weber-Syndrome) | Exceptional MELD criteria (All listing criteria have to be met):  
1. Symptomatic involvement of the liver (shunts, abscess, destructive cholangitis, liver necrosis)  
2. High output congestive heart failure;  
3. Cardiology report stating that high output congestive heart failure is primarily due to liver involvement and can therefore be cured by liver transplantation  
4. Acute liver failure due to hemorrhagic teleangiectasia (Rendu-Osler-Weber-syndrome) | 15% +10% Meld 40 Meld 40 |
| Hepatic hemangioendothelioma                   | Exceptional MELD criteria (All listing criteria have to be met):  
1. Histopathology evidence for hepatic hemangioendothelioma: limited cell density positive immunohistochemical staining of factor-VIII- related antigens on endothelial cells. | 15% +10% |
|                                              | Additional guidelines:  
1. Patient has to be on the liver transplant waiting list for at least one year. |              |
| Biliary sepsis                                | Exceptional MELD criteria (All listing criteria have to be met):  
1. At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions)  
2. Septicemia in spite of antibiotic therapy (i.e. source of infection cannot be eliminated) | Match MELD corresponding to a 3-months mortality calculated as the sum of:  
a) 3-month mortality on the Lab MELD plus;  
b) 20% 3-months mortality |
|                                              | Additional guidelines:  
1. Biliary sepsis can only be treated by liver transplantation |              |
| Primary sclerosing cholangitis (PSC)          | Exceptional MELD criteria (At least two criteria have to be met):  
1. At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions)  
2. Splenomegaly > 12 cm;  
3. Body Mass Index-Reduction > 10% within 12 months. | Match MELD corresponding to a 3-months mortality calculated as the sum of:  
a) 3-month mortality on the Lab MELD plus;  
b) 20% 3-months mortality |
### 5.9.3 The Netherlands

<table>
<thead>
<tr>
<th>Disease</th>
<th>Criteria</th>
<th>Initial exceptional MELD</th>
<th>Upgrade in 90-day steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biliary atresia</td>
<td>Exceptional MELD criteria: 1. Recipient is &lt;2 years old 2. Recipient diagnosed with biliary atresia</td>
<td>60%</td>
<td>+15%</td>
</tr>
<tr>
<td>Familial Amyloidotic Polyneuropathy (FAP)</td>
<td>Exceptional MELD criteria: 1. Biopsy with proof of amyloid deposits in an organ; 2. Proof of TTR gene mutation (DNA analysis or mass spectrometry (Val30Met vs. Non-Val30Met)).</td>
<td>10%</td>
<td>+10%</td>
</tr>
<tr>
<td></td>
<td>Additional guidelines: 1. Modified Polyneuropathy Disability (PND) Score &lt;IIIb; 2. Modified BMI (mBMI) &gt;700 [mBMI=(weight [kg]/length [m]^2)*S-Albumin [g/L]]; 3. In case of liver transplantation only: no life-threatening rhythm disorders and/or cardiomyopathy with EF &lt;40% ± NYHA II symptoms; 4. In case of cardiac involvement and left ventricular wall thickness &gt;12 mm combined lung-liver transplantation should be evaluated; 5. FAP liver should, whenever possible, be used for Domino liver transplantation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepato-pulmonary syndrome (HPS)</td>
<td>Exceptional MELD-criteria: 1. Proof of liver disease; 2. PaO2 &lt;60 mmHg at rest (sitting/ supine ambient air); 3. Proof of intrapulmonary shunt and exclusion of intracardiac shunts by contrast-enhanced echocardiography; 4. No alternative pulmonary disease to explain hypoxemia.</td>
<td>10%</td>
<td>+10%</td>
</tr>
<tr>
<td>Porto-pulmonary hypertension (PoPH)</td>
<td>Exceptional MELD-criteria: 1. Proof of underlying liver disease; 2. PAP: 25 &lt; PAPm &lt; 35 mmHg (with or without therapy); 3. Pulmonary vascular resistance (PVR) ≥240 dyn.s.cm^-5; 4. Pulmonary capillary wedge pressure (PCWP) ≤15 mmHg. 5. All mentioned values have to be documented by right heart catheterization</td>
<td>25%</td>
<td>+10%</td>
</tr>
<tr>
<td>Primary Hyperoxaluria Type 1 (PH1) (Oxalosis)</td>
<td>Listing criteria: AGT deficit proven in liver biopsy or phenotypically and confirmed by genetic analysis showing a homozygous or heterozygous mutation for primary hyperoxaluria type 1^60</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>exceptional MELD criteria (1 criterion applicable): 1. Preemptive liver transplantation, no renal injury. 2. Combined liver+kidney transplantation, no end-stage renal disease.</td>
<td>10%</td>
<td>+10%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10%</td>
<td>+10%</td>
</tr>
</tbody>
</table>

---

^59 List approved by the Landelijk Overleg Levertransplantatie (LOL).

^60 R-LAC 03.13 regarding genetic analysis implemented for Belgium, Croatia, Hungary, Luxembourg, the Netherlands and Slovenia as of December 15, 2014, for Austria as of September 12, 2015
| Recipients ≥1 yr and combined liver+kidney transplantation with end-stage renal disease. | 10% | +10% |
| Recipients <1 yr and combined liver+kidney transplantation. | MELD 40 |

**Polycystic liver disease (PLD)**

**Exceptional MELD criteria:**
- Recipient has been listed actively on the liver waiting list for ≥365d and fulfills one or more of the following:
  1. Budd-Chiari-like-Syndrome with hepato-venous outflow obstruction due to cysts (CT/MRI, Venography);
  2. Ascites complicating cyst fenestration procedures;
  3. Severe malnutrition (decreased mid-arm circumference in the non-dominant arm: men <23.8 cm, women: <23.1 cm)
  4. Dialysis dependency in combination with one criterion (1-3);
  5. Creatinine-Clearance 20-30ml/min in combination with one criterion (1-4).

**Hepatocellular Carcinoma (HCC)**

**Exceptional MELD criteria:**
- Recipient has 1 lesion ≥ 2 cm and ≤ 5cm or 2 or 3 lesions ≥ 1cm and ≤ 3cm in size, no extrahepatic metastases and no macrovascular invasion (Milan criteria).
- Accepted ways of diagnosis of HCC (at least 1):
  1. Biopsy, or
  2. AFP >400 ng/ml and one positive result with hypervascularisation with imaging technique (Spiral-CT, MRI), or
  3. Two positive results with hypervascularisation with imaging technique (Spiral-CT, MRI). Two different techniques must be applied.

**Additional guidelines:**
1. Recipients must fulfill the Milan criteria at the time of upgrade in 3-monthly steps.
2. Recipients initially:
   - inside the Milan criteria and, after treatment with one lesion <2cm or no lesion at all at time of request, are still considered to be transplant candidates.
   - inside the Milan criteria and lesion(s) exceeding the Milan criteria at time of request, are to be submitted to the national audit group.
   - outside the Milan criteria and fulfilling the criteria only after downstaging at time of request, are to be submitted to the national audit group.
3. Recipient has to be actively on the Liver waiting list for at least 6 months at the time of initial request. The recipient is not granted for this SE if the status is continuously NT for a period of 6 months or more. If the recipient is registered with an active status (T or HU) and becomes intermittently NT (less than 6 months), the SE can be granted.

**Exclusion criterion:**
- Recipients with lesion(s) initially, and also after downstaging outside the Milan criteria.

**Non-metastatic hepatoblastoma**
- No longer applicable. A request for HU status can be done directly.

**Urea cycle disorder/organic acidemia**
- No longer applicable. A request for HU status can be done directly.
### Hepatic artery thrombosis
Recipient diagnosed with HAT post transplantation not fulfilling the criteria for HU

<table>
<thead>
<tr>
<th>Disease</th>
<th>Criteria</th>
<th>Initial exceptional MELD</th>
<th>Upgrade in 90-day steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biliary atresia</td>
<td><em>Exceptional MELD criteria:</em> 1. Recipient is &lt;2 years old 2. Recipient diagnosed with biliary atresia</td>
<td>60%</td>
<td>+15%</td>
</tr>
<tr>
<td>Hepatocellular carcinoma (HCC)</td>
<td><em>Exceptional MELD criteria:</em> For German criteria for the SE HCC see the Richtlinien at <a href="http://www.bundesaerztekammer.de">http://www.bundesaerztekammer.de</a></td>
<td>15%</td>
<td>+10%</td>
</tr>
<tr>
<td>Non-metastatic hepatoblastoma</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polycystic liver disease (PLD)</td>
<td><em>Exceptional MELD criteria (1 or more):</em> 1. Ascites or variceal bleeding; 2. Budd-Chiari-like-Syndrome with hepato-venous outflow obstruction due to cysts (CT/MRI, Venography); 3. Ascites complicating cyst fenestration procedures; 4. Severe malnutrition (decreased mid-arm circumference in the non-dominant arm: men &lt;23.8 cm, women: &lt;23.1 cm) 5. Dialysis dependency in combination with one criterion (1-4) (combined liver-kidney transplantation to be evaluated); 6. Creatinine-Clearance 20-30ml/min in combination with one criterion (1-5) (combined liver-kidney transplantation to be evaluated).</td>
<td>10%</td>
<td>+10%</td>
</tr>
<tr>
<td>Primary Hyperoxaluria Type 1 (PH1)</td>
<td><em>Exceptional MELD criteria:</em> AGT deficit proven in liver or phenotypically and confirmed by genetic analysis showing a homozygous or heterozygous mutation for primary hyperoxaluria type 1[^62]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Registration for pre-emptive liver transplantation, no significant renal injury.</td>
<td>10%</td>
<td>+10%</td>
</tr>
<tr>
<td></td>
<td>Registration for combined liver-kidney transplantation, no end-stage renal insufficiency.</td>
<td>10%</td>
<td>+10%</td>
</tr>
<tr>
<td></td>
<td>Recipients ≥1 yr and combined liver-kidney transplantation with end-stage renal insufficiency and renal replacement therapy.</td>
<td>15%</td>
<td>+10%</td>
</tr>
<tr>
<td>Persistent hepatic dysfunction (including &quot;small for size&quot;-syndrome) with indication for retransplantation. This SE replaces the current SE &quot;small for size syndrome&quot;.</td>
<td><em>Exceptional MELD criteria (≥3 criteria):</em> 1. Less than 3 months after liver transplantation; 2. Hyperbilirubinemia ≥10 mg/dl, no proof of rejection/biliary duct obstruction; 3. Bile duct ischemia / ITBL (Non-anastomotic biliary strictures documented by MRI or ERCP) and/or; 4. INR ≥ 1.5; 5. Ascites;</td>
<td>Match MELD corresponding to a 3-months mortality calculated as the sum of: a) 3-month mortality on the Lab MELD plus; b) 20% 3-months mortality</td>
<td></td>
</tr>
<tr>
<td>Cystic fibrosis</td>
<td><em>Exceptional MELD criteria:</em></td>
<td>10%</td>
<td>+10%</td>
</tr>
</tbody>
</table>

[^61]: Richtlinien zur Organtransplantation gemäß §16 TPG, accessed via [www.baek.de](http://www.baek.de) on December 4, 2006.
<table>
<thead>
<tr>
<th>Liver transplantation with FEV1 &gt;40%, otherwise combined liver-lung transplantation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familial Amyloidotic Polyneuropathy (FAP) <strong>Exceptional MELD-criteria (1 and 2 in combination with 1 or more criteria from 3-6):</strong></td>
</tr>
<tr>
<td>1. Biopsy with proof of amyloid deposits in an organ;</td>
</tr>
<tr>
<td>2. Proof of TTR gene mutation (DNA analysis or mass spectrometry (Val30Met vs. Non-Val30Met)).</td>
</tr>
<tr>
<td><strong>Additional:</strong></td>
</tr>
<tr>
<td>3. Neurologic symptoms or modified Polyneuropathy Disability (PND) Score &lt;IIIb;</td>
</tr>
<tr>
<td>4. Modified BMI (mBMI) &gt;700 [mBMI=(weight [kg]/length [m]^2)*S-Albumin [g/L]];</td>
</tr>
<tr>
<td>5. In case of liver transplantation only: no life-threatening rhythm disorders and/or cardiomyopathy with EF&lt;40% ± NYHA II symptoms;</td>
</tr>
<tr>
<td>6. In case of cardiac involvement and left ventricular wall thickness &gt;12 mm combined heart-liver transplantation should be evaluated;</td>
</tr>
<tr>
<td>7. FAP liver should, whenever possible, be used for Domino liver transplantation.</td>
</tr>
<tr>
<td>Hepato-pulmonary syndrome (HPS) <strong>Exceptional MELD-criteria:</strong></td>
</tr>
<tr>
<td>1. Proof of liver disease;</td>
</tr>
<tr>
<td>2. PaO2 &lt;60 mmHg at rest (sitting/supine ambient air);</td>
</tr>
<tr>
<td>3. Proof of intrapulmonary shunt and exclusion of intracardiac shunts by contrast-enhanced echocardiography;</td>
</tr>
<tr>
<td>4. No alternative pulmonary disease to explain hypoxemia.</td>
</tr>
<tr>
<td>Porto-pulmonary hypertension (PoPH) <strong>Exceptional MELD-criteria:</strong></td>
</tr>
<tr>
<td>1. Proof of underlying liver disease;</td>
</tr>
<tr>
<td>2. PAP: 25 &lt; PAPm &lt; 35 mmHg (with or without therapy);</td>
</tr>
<tr>
<td>3. Pulmonary vascular resistance (PVR) ≥240 dyn.s.cm^-5</td>
</tr>
<tr>
<td>4. Pulmonary capillary wedge pressure (PCWP) ≤15 mmHg.</td>
</tr>
<tr>
<td>5. All mentioned values have to be documented by right heart catheterization.</td>
</tr>
<tr>
<td>Urea cycle disorder/organic acidemia</td>
</tr>
<tr>
<td>Cholangiocarcinoma <strong>Exceptional MELD criteria:</strong></td>
</tr>
<tr>
<td>1. Biliary strictures in cholangiogram and biopsy and/or cytology with proof of neoplasia (aneuploidy considered to be neoplasia);</td>
</tr>
<tr>
<td>2. Tumor unresectable due to technical considerations or underlying liver disease;</td>
</tr>
<tr>
<td>3. Lesion (CT/MRI) &lt;3cm in diameter;</td>
</tr>
<tr>
<td>4. no intra- or extrahepatic metastases in CT/MRI (thorax, abdomen); no regional lymph nodes involved (exclusion via laparotomy);</td>
</tr>
<tr>
<td>5. Centre should operate according to</td>
</tr>
<tr>
<td>Condition</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Hereditary hemorrhagic teleangiectasia (Rendu-Osler-Weber-Syndrome)     | 1. Symptomatic involvement of the liver (shunts, abscess, destructive cholangitis, liver necrosis)  
2. High output congestive heart failure;  
3. Cardiology report stating that high output congestive heart failure is primarily due to liver involvement and can therefore be cured by liver transplantation  
4. Acute liver failure due to hemorrhagic teleangiectasia (Rendu-Osler-Weber-syndrome) | 40 Meld | 40 Meld |
| Hepatic hemangioendothelioma                                              | 1. Histopathology evidence for hepatic hemangioendothelioma: limited cell density positive immunohistochemical staining of factor-VIII-related antigens on endothelial cells. | 15% | +10% |
| Biliary sepsis/Secondary sclerosing cholangitis (SSC)63                   | 1. At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions)  
2. Septicemia in spite of antibiotic therapy (i.e. source of infection cannot be eliminated) | | |
| Additional guidelines:                                                   | 1. Patient has to be on the liver transplant waiting list for at least one year. | | |
| Primary sclerosing cholangitis (PSC)64                                   | 1. At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions)  
2. Documented development of dominant bile duct stenosis.  
3. Body Mass Index-Reduction > 10% within 12 months. | 15% | +10% |

Additional guidelines:

63 Richtlinien zur Organtransplantation gemäß §16 TPG, der Tagesordnung der 05. Sitzung der Ständigen Kommission Organtransplantation am 22.11.2011 accessed via www.baek.de on December 4, 2006

64 Richtlinien zur Organtransplantation gemäß §16 TPG, der Tagesordnung der 05. Sitzung der Ständigen Kommission Organtransplantation am 22.11.2011 accessed via http://www.baek.de/6
1. PSC has to be diagnosed according to standard radiology criteria

### Neuroendocrine tumor (NET)\(^{65}\)

**Exceptional MELD criteria**  
1. Non-resectable (generally diagnosed by multiphase CT or liver specific CE MRT or other standard of care diagnostic procedure), highly differentiated gastro-entero-pancreatic neuroendocrine tumor (GEP-NET) liver metastases (Ki-67/MiB status necessary) with porto-venous drainage (patients with NET metastases originating from the distal rectum, esophagus, lung, adrenal, and thyroid are excluded from SE) confined to the liver exclusively (exclusion of extra-hepatic metastases in solid organs (lung, bones) via PET or Somatostatin receptor scintigraphy or DOTA/DOTATOC scintigraphy, or methods according to the latest scientific guidelines defined by the center’s tumor board).

2. Stable disease since >6 months after resection of the primary tumor and of possible extra-hepatic metastases before requesting SE.

3. Obligatory audit and decision in the center’s tumor board.

**Additional guidelines:**

1. Recertification must be done every 3 months according to the above mentioned diagnostic methods approved by the tumor board of the center.

2. Appearance of extrahepatic progression, i.e. lymph node metastases leads to delisting but re-listing is possible after a 6 month interval of extrahepatic freedom of cancer.

3. Extrahepatic metastases in solid organs lead to permanent exclusion from transplantation.

### Belgium/Luxembourg\(^{66}\)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Criteria</th>
<th>Initial exceptional MELD</th>
<th>Upgrade in 90-day steps</th>
</tr>
</thead>
</table>
| Biliary atresia | 1. Recipient is <2 years old  
2. Recipient diagnosed with biliary atresia | 60% | +15% |
| Cystic fibrosis | Liver transplantation, FEV1 >40% | 10% | + 10% |
| Familial Amyloidotic Polyneuropathy (FAP) | exceptional MELD-criteria:  
1. Biopsy with proof of amyloid deposits in an organ; | 15% | + 10% |

---

\(^{65}\) More information can be found in the Richtlinien at [http://www.bundesaerztekammer.de](http://www.bundesaerztekammer.de)

\(^{66}\) List approved by Belgian Liver Intestine Committee (Be-LIAC).
2. Proof of TTR gene mutation (DNA analysis or mass spectrometry (Val30Met vs. Non-Val30Met)).
3. Modified Polyneuropathy Disability (PND) Score <110b;
4. Modified BMI (mBMI) >700 [mBMI=(weight [kg]/length [m]^2)*S-Albumin [g/L]];

**Additional guidelines:**
1. In case of liver transplantation only: no life-threatening rhythm disorders and/or cardiomyopathy with EF <40% ± NYHA II symptoms;
2. In case of cardiac involvement and left ventricular wall thickness >12 mm combined heart-liver transplantation should be evaluated;
3. FAP liver should, whenever possible, be used for Domino liver transplantation.

<table>
<thead>
<tr>
<th>Hepato-pulmonary syndrome (HPS)</th>
<th>Exceptional MELD-criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proof of liver disease;</td>
<td></td>
</tr>
<tr>
<td>2. PaO2 &lt;60 mmHg at rest (sitting/ supine ambient air);</td>
<td></td>
</tr>
<tr>
<td>3. Proof of intrapulmonary shunt and exclusion of intracardiac shunts by contrast-enhanced echocardiography;</td>
<td></td>
</tr>
<tr>
<td>4. No alternative pulmonary disease to explain hypoxemia.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Porto-pulmonary hypertension (PoPH)</th>
<th>Exceptional MELD-criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proof of underlying liver disease;</td>
<td></td>
</tr>
<tr>
<td>2. PAP: 25 &lt; PAPm &lt; 35 mmHg (with or without therapy);</td>
<td></td>
</tr>
<tr>
<td>3. Pulmonary vascular resistance (PVR) ≥240 dyn.s.cm^{-5}</td>
<td></td>
</tr>
<tr>
<td>4. Pulmonary capillary wedge pressure (PCWP) ≤15 mmHg.</td>
<td></td>
</tr>
<tr>
<td>5. All mentioned values have to be documented by right heart catheterization.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary Hyperoxaluria Type 1 (PH1) (Oxalosis)</th>
<th>Listing criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGT deficit proven in liver biopsy or phenotypically and confirmed by genetic analysis showing a homozygous or heterozygous mutation for primary hyperoxaluria type 1</td>
<td></td>
</tr>
</tbody>
</table>

**Exceptional MELD-criteria (1 criterion applicable):**

| Preemptive liver transplantation, no renal injury. | 10% + 10% |
| Combined liver+kidney transplantation, no end-stage renal disease. | 10% + 10% |
| Recipients ≥1 yr and combined liver+kidney transplantation with end-stage renal disease. | 15% + 10% |
| Recipients <1 yr and combined liver+kidney transplantation. | MELD 40 |

<table>
<thead>
<tr>
<th>Polycystic liver disease (PLD)</th>
<th>Listing criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Massive PLD (total Cysts/Parenchyma &gt;1) and complication(s), that can exclusively be treated by liver transplantation;</td>
<td></td>
</tr>
<tr>
<td>2. clinically apparent liver disease due to massive PLD, incl. weight loss, ascites,</td>
<td></td>
</tr>
</tbody>
</table>

---

67 R-LAC 03.13 regarding genetic analysis implemented for Belgium, Croatia, Hungary, Luxembourg, the Netherlands and Slovenia as of December 15, 2014, for Austria as of September 12, 2015.
<table>
<thead>
<tr>
<th>Exceptional MELD criteria (≥1 in combination with listing criteria):</th>
<th>10%</th>
<th>+10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ascites or variceal bleeding;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Budd-Chiari-like-Syndrome with hepatovenous outflow obstruction due to cysts (CT/MRI, Venography);</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Ascites complicating cyst fenestration procedures;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Severe malnutrition (decreased mid-arm circumference in the non-dominant arm: men &lt;23.8 cm, women: &lt;23.1 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Dialysis dependency in combination with one criterion (1-4);</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Creatinine-Clearance 20-30ml/min in combination with one criterion (1-5).</td>
<td>15%</td>
<td>+10%</td>
</tr>
</tbody>
</table>

### Hepatocellular Carcinoma (HCC)

**Exceptional MELD criteria:**
Recipient has 1 lesion ≥ 2 cm and ≤ 5cm or 2 or 3 lesions ≥ 1cm and ≤ 3cm in size, no extrahepatic metastases and no macrovascular invasion (Milan criteria). Accepted ways of diagnosis of HCC (at least 1):
1. Biopsy, or
2. AFP >400 ng/ml and one positive result with hypervascularisation with imaging technique (Spiral-CT, MRI), or
3. Two positive results with hypervascularisation with imaging technique (Spiral-CT, MRI). Two different techniques must be applied.

**Additional guidelines:**
1. Recipients must fulfill the Milan criteria at the time of upgrade in 3-monthly steps.
2. Recipients initially:
   - inside the Milan criteria and, after treatment with one lesion <2cm or no lesion at all at time of request, are still considered to be transplant candidates.
   - inside the Milan criteria and lesion(s) exceeding the Milan criteria at time of request, are to be submitted to the national audit group.
   - outside the Milan criteria and fulfilling the criteria only after downstaging at time of request, are to be submitted to the national audit group.

**Exclusion criterion:**
Recipients with lesion(s) initially, and also after downstaging, outside the Milan criteria.

---

<table>
<thead>
<tr>
<th>Non-metastatic hepatoblastoma</th>
<th>No longer applicable. A request for HU status can be done directly.</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea cycle disorder/organic acidemia</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatic artery thrombosis</td>
<td>Recipient diagnosed with HAT post transplantation not fulfilling the criteria for HU</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Persistent hepatic</td>
<td><strong>Exceptional MELD criteria (≥3 criteria):</strong></td>
<td>Match MELD</td>
<td></td>
</tr>
</tbody>
</table>
### Chapter 5 – ELAS

<table>
<thead>
<tr>
<th>Dysfunction (including “small for size”-syndrome) with indication for retransplantation. This SE replaces the current SE “small for size syndrome”.</th>
<th>1. Less than 3 months after liver transplantation.; 2. Hyperbilirubinemia ≥10 mg/dl, no proof of rejection/biliary duct obstruction; 3. Non-anastomotic bile duct strictures documented by MRI or ERCP.; 4. INR ≥ 1.5; 5. Ascites:</th>
<th>Corresponding to a 3-months mortality calculated as the sum of: a) 3-month mortality on the Lab MELD plus; b) 20% 3-months mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hereditary hemorrhagic teleangiectasia (Rendu-Osler-Weber-Syndrome)</td>
<td>exceptional MELD criteria (All listing criteria have to be met): 1. Symptomatic involvement of the liver (shunts, abscess, destructive cholangitis, liver necrosis) 2. High output congestive heart failure; 3. Cardiology report stating that high output congestive heart failure is primarily due to liver involvement and can therefore be cured by liver transplantation 4. Acute liver failure due to hemorrhagic teleangiectasia (Rendu-Osler-Weber-syndrome)</td>
<td>15% +10%</td>
</tr>
<tr>
<td>Hepatic hemangioendothelioma</td>
<td>exceptional MELD criteria (All listing criteria have to be met): 1. Histopathology evidence for hepatic hemangioendothelioma: limited cell density positive immunohistochemical staining of factor-VIII-related antigens on endothelial cells.</td>
<td>15% +10%</td>
</tr>
</tbody>
</table>

### 5.9.6 Croatia\(^{68}\)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Criteria</th>
<th>Initial exceptional MELD</th>
<th>Upgrade in 90-day steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biliary atresia</td>
<td>1. Recipient is &lt;2 years old 2. Recipient diagnosed with biliary atresia</td>
<td>60%</td>
<td>+15%</td>
</tr>
<tr>
<td>Hepatocellular carcinoma (HCC)</td>
<td>exceptional MELD criteria: Recipient has 1 lesion ≥ 2 cm and ≤ 5cm or 2 or 3 lesions ≥ 1 cm and ≤ 3cm in size, no extrahepatic metastases and no macrovascular invasion (according to Milan criteria). Accepted ways of diagnosis of HCC: 1. Biopsy, or 2. AFP &gt;400 ng/ml and one positive result with/without hypervascularisation with imaging technique (Spiral-CT, MRI), or 3. Two positive results with/without hypervascularisation with imaging technique (Spiral-CT, MRI),</td>
<td>15%</td>
<td>+ 10%</td>
</tr>
</tbody>
</table>

---

\(^{68}\) List approved by Ministry of Health and social welfare (M.Busic)
<table>
<thead>
<tr>
<th>Condition</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-metastatic hepatoblastoma</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
</tr>
<tr>
<td>Urea cycle disorder/organic acidemia</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
</tr>
<tr>
<td>Hepatic artery thrombosis</td>
<td>Recipient diagnosed with HAT post transplantation not fulfilling the criteria for HU 100%</td>
</tr>
<tr>
<td>Polycystic liver disease (PLD)</td>
<td>Listing criteria: 1. Massive PLD (total Cysts/Parenchyma &gt;1) and complication(s), that can exclusively be treated by liver transplantation; 2. clinically apparent liver disease due to massive PLD, incl. weight loss, ascites, portal hypertension; 3. Failure of non-transplant related interventions or contraindications for further non-transplant related interventions; 4. Contraindications for non-transplant related interventions, fulfilling criteria 1 and 2.</td>
</tr>
<tr>
<td>Primary Hyperoxaluria Type 1 (PH1)</td>
<td>Registration for pre-emptive liver transplantation, no significant renal injury. 10% +10%</td>
</tr>
<tr>
<td></td>
<td>Registration for combined liver+kidney transplantation, no end-stage renal insufficiency. 10% +10%</td>
</tr>
<tr>
<td></td>
<td>Recipients ≥1 yr and combined liver+kidney transplantation with end-stage renal insufficiency and renal replacement therapy. 15% +10%</td>
</tr>
</tbody>
</table>

---

10% +10%  

69 R-LAC 03.13 regarding genetic analysis implemented for Belgium, Croatia, Hungary, Luxembourg, the Netherlands and Slovenia as of December 15, 2014, for Austria as of September 12, 2015.
<table>
<thead>
<tr>
<th>Condition</th>
<th>Exceptional MELD Criteria</th>
<th>Matched MELD Criteria</th>
</tr>
</thead>
</table>
| Persistent hepatic dysfunction (including “small for size”-syndrome) with indication for retransplantation. This SE replaces the current SE “small for size syndrome”. | exceptional MELD criteria (≥3 criteria):  
1. Less than 3 months after liver transplantation.;  
2. Hyperbilirubinemia ≥10 mg/dl, no proof of rejection/biliary duct obstruction;  
3. Non-anastomotic bile duct strictures documented by MRI or ERCP.;  
4. INR ≥ 1.5;  
5. Ascites; | Matched MELD corresponding to a 3-months mortality calculated as the sum of:  
a) 3-month mortality on the Lab MELD plus:  
b) 20% 3-months mortality |
| Cystic fibrosis                                                           | Liver transplantation, FEV1 <40% | 10% + 10% |
| Familial Amyloidotic Polyneuropathy (FAP)                                 | exceptional MELD-criteria (1 and 2 in combination with 1 or more criteria from 3-6):  
1. Biopsy with proof of amyloid deposits in an organ;  
2. Proof of TTR gene mutation (DNA analysis or mass spectrometry (Val30Met vs. Non-Val30Met)). | 15% + 10% |
| Additional                                                                |                           |                       |
|                                                                          |                           |                       |
| Hepato-pulmonary syndrome (HPS)                                           | exceptional MELD-criteria:  
1. Proof of liver disease;  
2. PaO₂ <60 mmHg at rest (sitting/supine ambient air);  
3. Proof of intrapulmonary shunt and exclusion of intracardiac shunts by contrast-enhanced echocardiography;  
4. No alternative pulmonary disease to explain hypoxemia. | 15% +10% |
| Porto-pulmonary hypertension (PoPH)                                       | exceptional MELD-criteria:  
1. Proof of underlying liver disease;  
2. PAP: 25 < PAPm < 35 mmHg (with or without therapy);  
3. Pulmonary vascular resistance (PVR) ≥240 dyn.s.cm⁻⁵  
4. Pulmonary capillary wedge pressure (PCWP) ≤15 mmHg.  
5. All mentioned values have to be documented by right heart catheterization. | 25% + 10% |
| Cholangiocarcinoma                                                        | 1. Biliary strictures in cholangiogram and biopsy and/or cytology with proof of neoplasia (aneuploidy considered to be neoplasia);  
2. Tumor unresectable due to technical considerations or underlying liver disease;  
3. Lesion (CT/MRI) <3cm in diameter;  
4. no intra- or extrahepatic metastases in CT/MRI (thorax, abdomen), no regional lymph nodes involved (exclusion via | 10% + 10% |
<table>
<thead>
<tr>
<th>Condition</th>
<th>Exceptional MELD Criteria</th>
<th>MELD 40</th>
<th>Additional Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hereditary hemorrhagic teleangiectasia (Rendu-Osler-Weber-Syndrome)</td>
<td>All listing criteria have to be met: 1. Symptomatic involvement of the liver (shunts, abscess, destructive cholangitis, liver necrosis) 2. High output congestive heart failure; 3. Cardiology report stating that high output congestive heart failure is primarily due to liver involvement and can therefore be cured by liver 4. Acute liver failure due to hemorrhagic teleangiectasia (Rendu-Osler-Weber-syndrome) transplantation</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>Hepatic hemangioendothelioma</td>
<td>All listing criteria have to be met: 1. Histopathology evidence for hepatic hemangioendothelioma: limited cell density positive immunohistochemical staining of factor-VIII-related antigens on endothelial cells.</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>Biliary sepsis</td>
<td>All listing criteria have to be met: 1. At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions) 2. Septicemia in spite of antibiotic therapy (i.e. source of infection cannot be eliminated)</td>
<td>Match MELD corresponding to a 3-months mortality calculated as the sum of: a) 3-month mortality on the Lab MELD plus; b) 20% 3-months mortality</td>
<td>10%</td>
</tr>
<tr>
<td>Primary sclerosing cholangitis (PSC)</td>
<td>At least two criteria have to be met: 1. At least two spontaneously occurring septic episodes within 6 months (not due interventions, not treatable by interventions) 2. Splenomegaly &gt; 12 cm; 3. Body Mass Index-Reduction &gt; 10% within 12 months.</td>
<td>Match MELD corresponding to a 3-months mortality calculated as the sum of: a) 3-month mortality on the Lab MELD plus; b) 20% 3-months mortality</td>
<td>10%</td>
</tr>
</tbody>
</table>
5.9.7 **Hungary**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Note</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-metastatic hepatoblastoma</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
<td>100%</td>
</tr>
<tr>
<td>Urea cycle disorder/organic acidemia</td>
<td>No longer applicable. A request for HU status can be done directly.</td>
<td></td>
</tr>
<tr>
<td>Hepatic artery thrombosis</td>
<td>Recipient diagnosed with HAT post transplantation not fulfilling the criteria for HU</td>
<td></td>
</tr>
</tbody>
</table>

---

70 Standard Exceptions implemented on May 17, 2016
Addendum B – MELD equivalents

In order to assign a MELD score equivalent in recipients eligible for an (N)SE exceptional MELD, the following calculation tables is applied\(^{71}\).

5.9.8 Graph

\(^{71}\) Based on UNOS data (June 2006).
### Table

<table>
<thead>
<tr>
<th>MELD score</th>
<th>3-mo mortality equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td>22</td>
<td>15%</td>
</tr>
<tr>
<td>24</td>
<td>20%</td>
</tr>
<tr>
<td>25</td>
<td>25%</td>
</tr>
<tr>
<td>26</td>
<td>30%</td>
</tr>
<tr>
<td>28</td>
<td>35%</td>
</tr>
<tr>
<td>29</td>
<td>40%</td>
</tr>
<tr>
<td>29</td>
<td>45%</td>
</tr>
<tr>
<td>30</td>
<td>50%</td>
</tr>
<tr>
<td>31</td>
<td>55%</td>
</tr>
<tr>
<td>32</td>
<td>60%</td>
</tr>
<tr>
<td>33</td>
<td>65%</td>
</tr>
<tr>
<td>33</td>
<td>70%</td>
</tr>
<tr>
<td>34</td>
<td>75%</td>
</tr>
<tr>
<td>35</td>
<td>80%</td>
</tr>
<tr>
<td>36</td>
<td>85%</td>
</tr>
<tr>
<td>37</td>
<td>90%</td>
</tr>
<tr>
<td>39</td>
<td>95%</td>
</tr>
<tr>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>
5.10 Forms

All forms can be found and downloaded from the section 'Forms' of the Library of the member site at www.eurotransplant.org.