

# **Chapter 7**

## **ET Pancreas Allocation System (EPAS)**

# Change record

Date	Author	Version	Change reference
April 2021	M. van Bruchem	2022.1	Removed pending recommendations, corrected link 7.2.2 transplant candidate ranking
November 2020	J. de Boer	2020.4	Adjusted: Flowchart 1 - Vascularized pancreas allocation (§7.2.2.2.2) and 7.2.2.2.3 Flowchart 2 – Allocation of extended criteria donors (§7.2.2.2.3) with respect to the amendment to RPAC01.18: Immunized program for pancreas recipients
August 2020	J. de Boer	2020.3	Corrections match points
July 2020	J. de Boer	2020.2	Added recommendations: R-PAC01.14 - pancreas listing criteria; R-PAC01.15 - plasmapheresis immunized program; R-PAC01.16_SU status and return of waiting time after early failed pancreas transplant – revised and R-PAC01.18 - Immunized program for pancreas recipients
January 2020	J. de Boer	5.5	Referral to Pancreas audit procedure added; %PRA changed into vPRA
December 2019	J. de Boer	5.4	Separating Austria and Slovenia in the EPAS match. They are considered individual procurement regions, according to R-PAC02.03
July 2019	J. de Boer	5.3	Priority for AM Pancreas/Kidney transplant Candidates (§7.2.2.2.1)
November 2017	J. de Boer	5.2	Pending recommendations added
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March 2015	J. de Boer, C. Jansen, WH Kopp, MD van Rosmalen	5.0	Total revision
July 2014	J. de Boer	4.4	ACO and SU audit only if recipient is on the <b>Active</b> waiting list(s)
December 2013	MD van Rosmalen	4.3	Implementation of RPAC02.11 regarding the blood group rules for all countries
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July 2013	MD van Rosmalen	4.0	Addition of Hungary, minor adjustments
08-03-2013	MD van Rosmalen	3.0	Textual Adjustments
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Dec 2011	MD van Rosmalen	1.1	7.1.2.1.1 Adaptation ACO-audit; all pancreata need to be audited, even pancreata with positive antibodies or

Date	Author	Version	Change reference
			impaired hypoglycemia according to decision EPAC 13-10-11

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:

- Insofar, as provisions about the acceptance of organ transplant candidates 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.

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## Chapter 7 – EPAS

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## 7.1 EPAS – Listing

### 7.1.1 Listing criteria<sup>1</sup>

Recipients can be listed for a first transplant on the active pancreas or islet transplant waiting list if antibody screening for GAD, IA2, ICA or ZnT8 antibodies is positive or has been positive in the past. IAA antibodies can also be accepted but only if the serum sample was taken prior to the start of insulin therapy.

If no  $\beta$ -cell antibodies can be detected or in case of a reregistration after a pancreas (+ kidney) transplant, recipients can be listed on the active pancreas transplant waiting list if  $\beta$ -cell deficiency is present.

$\beta$ -cell deficiency is defined as:

- Pre-stimulation C-peptide <0.5 ng/ml (<0.16 nmol/l) with an increase after stimulation of <20% (if no glucose test is available); or
- Pre-stimulation C-peptide <0.5 ng/ml (<0.16 nmol/l) with a correlating Glucose level >70 mg/dl (c.q. > 3.9 mmol/l); or
- Post-stimulation C-peptide < 0.8ng/ml (<0.26 nmol/l) correlated to a rise in Glucose levels >100 mg/dl (c.q. > 5.6 mmol/l).

Stimulation test can be:

- Oral Glucose Tolerance Test (GTT) with serum glucose and/or C-peptide measured before and at 90 or 120 minutes;or
- Mixed Meal Tolerance with serum glucose and/or C-peptide measured before and at 90 or 120 minutes;or
- IV or SC Glucagon with serum glucose and/or C-peptide measured before and at 6 minutes.

In case of listing for a retransplant C-peptide and serum glucose levels must be measured from a serum sample dated after the previous transplant date

All original lab results regarding auto-antibodies and/or C-peptide must be sent to Eurotransplant ([waitinglist-registration@eurotransplant.org](mailto:waitinglist-registration@eurotransplant.org))

Auto-antibody negative recipients without low C-peptide can be listed after EPAC approval. A request for approval can be sent to [urgency@eurotransplant.org](mailto:urgency@eurotransplant.org).

Doctors involved in the audit procedure should follow the “Pancreas audit procedure” which is published on the ET member site (see Manuals→ Eurotransplant Manual→Pancreas audit procedure).

### 7.1.2 Required type of Transplant

Transplant candidates can be listed either for Vascularized Pancreas Transplantation or Islet Transplantation.

### 7.1.3 Urgency codes

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

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<sup>1</sup> R-PAC01.14, Approved by the Board on 20-01-2015, Implemented on 14-07-2020

Urgency codes on the waiting list for a pancreas transplant

Urgency code		Transplantability	Medical urgency
ACO	Approved Combined Organ (mandatory exchange)	yes	multi-organ transplant
SU	Special Urgency	yes	urgent
T	Transplantable	yes	elective
NT	Not Transplantable	no	no

### 7.1.3.1 Approved Combined Organ (ACO)

Patients in need of a multi-organ pancreas transplant (except pancreas + kidney) can request an ACO status.

A remote center cannot assign an ACO status in ENIS.

#### 7.1.3.1.1 ACO audit

An ACO audit can only be initiated when the transplant candidate is on the active waiting list for all organs concerned (except for pancreas: Not transplantable due to too high C-peptide).

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

All ACO requests requiring a pancreas will be audited by a member of the EPAC.

Approved ACO requests will be allocated according the leading organ (See Chapter 3 Allocation general §3.2.3).

### 7.1.3.2 Special Urgency (SU)

#### 7.1.3.2.1 Vascularized Pancreas Special Urgency (SU) status

Any Eurotransplant pancreas transplant center can request the Vascularized Pancreas Special Urgency (SU) status for a transplant candidate on the active waiting list (i.e. SU requests will not be taken into account for transplant candidates in urgency NT, unless the urgency NT is due to a high C-peptide), In that case, a combined request for registration on the waiting list together a with SU status request can be sent.

- The Vascularized Pancreas Special Urgency (SU) status is an international status and is valid for three months or until the transplant candidate receives a status other than active within that time period.
- Transplant candidates with a Vascularized Pancreas Special Urgency (SU) status will be allocated prior to the transplant candidates with an elective status.

Inclusion criteria:

- Patients who are in need of an urgent **pancreas-only** re-transplantation, following a pancreas graft failure within 14 days post-transplant, The SU request must have been received by the ET

office on the 14th day after transplantation at the latest<sup>2</sup>.

- A defective glycemc counter regulation confirmed by a hypoglycemic clamp test
- Suffering from hypoglycemia unawareness at least twice in one year, requiring medical assistance and hospitalization.

#### 7.1.3.2.1.1 Deviant national Regulations: Germany

- Either experiencing two or more hypoglycemic episodes in one year requiring medical assistance or one confirmed episode of hypoglycemic unawareness.

#### 7.1.3.2.2 Islets Special Urgency (SU) status

A SU status can be requested for islet transplantation in non-German countries.

The SU islet status is a national status and valid until the transplant candidate receives a status other than active within that time period.

The national SU status is granted according to the national criteria described for each member country in 7.8.1 National SU islet criteria.

#### 7.1.3.3 SU audit

The corresponding SU form (see [Eurotransplant SU Pancreas Forms](#)) must be completed on all items and sent to: [urgency@eurotransplant.org](mailto:urgency@eurotransplant.org). All requests are evaluated by members of the Eurotransplant Pancreas Advisory Committee.

Doctors involved in the audit procedure should follow the “Pancreas audit procedure” which is published on the ET member site (see Manuals→ Eurotransplant Manual→Pancreas audit procedure). For Vascularized Pancreas SU status two members of the EPAC, from outside the requesting center, are contacted to evaluate the SU request according to the above mentioned criteria, and only after its approval will urgency SU be granted and will the urgency be changed in ENIS by the ET Medical Administration. In a tie situation, a third EPAC member will decide on the approval or denial of the SU request.

In case of doubt in a combined vascularized pancreas-kidney SU request concerning the indication for the kidney transplant, an ETKAC member can be asked for advice<sup>3</sup>.

Islet Special Urgency (SU) status can be audited by the Eurotransplant medical staff. In case a request for Islet SU does not fulfill the national criteria, the request is sent to the national Auditor. A transplant center cannot assign urgency SU in ENIS.

#### 7.1.3.4 Duration SU status<sup>4</sup>

For an urgent pancreas-only re-transplantation, the SU status will be granted for the duration of 60 days. After the end of the SU period the patient is eligible for return of waiting time (see § 7.1.6 Return of waiting time ).

#### 7.1.3.5 SU status re-evaluation

In case of a first pancreas (+kidney) transplant, the time limit for the vascularized pancreas SU status is set to three months. If a patient has not been transplanted within this time frame and the transplant center involved wants to prolong the SU status, the center will have to submit a renewed request accompanied by a comprehensive letter in English. The request will again be audited by the pancreas audit committee<sup>5</sup>.

A renewed request should preferably submitted 3 days before the end of the SU period. If the renewed

<sup>2</sup> R-PAC 01.16, approved by the Board on 24-01-2018, implemented on 14-07-2020

<sup>3</sup> Board recommendation RPAC01.11; EPAC meeting October 2011

<sup>4</sup> R-PAC 01.16, approved by the Board on 24-01-2018, implemented on 14-07-2020

<sup>5</sup> Board recommendation RPAC02.08 ; EPAC meeting October 2008

request has not been sent in by the end of the SU period, the patient will be downgraded to the T status the next day.

Patients in SU status who become (temporarily) not transplantable have to be reported as NT to Eurotransplant and will at that moment lose the SU status and the SU days accumulated so far. However, each day in the SU status will be added to the previously accumulated waiting time in an active status. If these transplant candidates become transplantable again, a new SU request must be sent to Eurotransplant.

#### 7.1.4 *Transplantable (T), elective patients*

Urgency T is used for elective patients awaiting a vascularized pancreas or islet transplant and who are transplantable.

#### 7.1.5 *Not Transplantable (NT)*

Urgency NT is used for patients who are temporarily not transplantable. All previously accumulated waiting time in an active status (T or SU) is retained during the NT status.

During one single waiting list period, patients can accumulate waiting time points up to 30 days in the NT status. These waiting time points will only be used in urgency T. Following these 30 NT days, no further waiting time points in the NT status are added to the total waiting time period.

Patients with urgency NT are not selected in matching procedures.

#### 7.1.6 *Return of waiting time<sup>6</sup>*

If re-registration takes place not later than 365 days after transplantation, the patient is eligible for return of waiting time.

The percentage of waiting time returned will differ, dependent on the date of re-registration in relation to the transplant date:

- 100% waiting time return, if re-registration takes place not later than 91 days after the transplant;
- 75% waiting time return, if re-registration takes place 92 to 183 days after the transplant;
- 50% waiting time return, if re-registration takes place 184 to 275 days after the transplant;
- 25% waiting time return, if re-registration takes place 276 days to 365 days after the transplant

After this period, no bonus whatsoever will be granted.

##### 7.1.6.1 **Deviant national regulation: Germany**

For German patients, the return of waiting time is based on the date of failure of the pancreas instead of the date of re-registration:

If pancreas graft failure occurs within 365 days post-transplant the patient is eligible for return of waiting time.

The percentage of waiting time returned will differ, dependent on the date of re-registration in relation to the transplant date:

- 100% waiting time return, if graft failure occurs not later than 91 days after the transplant;
- 75% waiting time return, if graft failure occurs 92 to 183 days after the transplant;
- 50% waiting time return, if graft failure occurs 184 to 275 days after the transplant;

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<sup>6</sup> R-PAC 01.16, approved by the Board on 24-01-2018, implemented on 14-07-2020



- 25% waiting time return, if graft failure occurs 275 days to 365 days after the transplant

After this period, no bonus whatsoever will be granted.

## 7.2 EPAS - general

### 7.2.1 Donor criteria

Donors with age  $\geq 5$  and  $\leq 50$  years and with BMI  $< 30$  Kg/m<sup>2</sup> are selected primarily for vascularized pancreas transplantation. Donors with age  $< 5$  or  $> 50$  years or with a BMI  $\geq 30$  Kg/m<sup>2</sup> are considered extended criteria donors and, after offering to SU patients awaiting a vascularized pancreas transplantation, selected for islet transplantation. For deviant national regulations see 7.2.2.5 Deviant national regulations

### 7.2.2 EPAS – Allocation Algorithm

This section describes the allocation of a donor pancreas to those transplant candidates awaiting either a pancreas-only (vascularized or islet) transplantation, or a simultaneous vascularized pancreas kidney or islet kidney transplantation.

Transplant candidates awaiting transplantation in combination with either thoracic organs or the liver are considered in this other organ allocation algorithm. Please refer to the respective organ specific chapter at [Eurotransplant Manual](#).

Pancreas-kidney transplant candidates will not be favored over pancreas-only transplant candidates in the allocation.

The EPAS Allocation algorithm consists of:

- Transplant candidate selection (see 7.2.2.1)
- Transplant candidate ranking (see 7.2.2.2)
- Filtering on donor profile (see 7.2.2.4)

#### 7.2.2.1 Transplant candidate selection

The selection of potential transplant candidates is based on Required type of Transplant, donor age, donor body mass index (BMI=weight [in kilograms] / (height [in meters])<sup>2</sup>), and ABO blood group rules.

Pancreas of donors aged  $\geq 5$  and  $\leq 50$  years with a BMI of  $< 30$  Kg/m<sup>2</sup> are primarily offered to transplant candidates awaiting a vascularized pancreas transplantation and thereafter to transplant candidates awaiting an islet transplantation.

Pancreas of donors age either  $< 5$  years or  $> 50$  years or with a BMI  $\geq 30$  Kg/m<sup>2</sup> are offered to transplant candidates awaiting an islet transplantation only.

If HLA is known, immunized pancreas + kidney transplant candidates having a vPRA  $> 85\%$  and accepted within the AM kidney program will receive an organ offer via the AM program (see [ETRL Website](#)). These pancreas-kidney-transplant candidates are prioritized over other transplant candidates.

##### 7.2.2.1.1 ABO blood group rules

In all countries the allocation is blood group identical before compatible and national before international<sup>7</sup>.

<sup>7</sup> As per 9 December 2013 all countries follow the same blood group rules (RPAC02.11)

ABO-incompatible pancreas transplants are not allowed.

#### 7.2.2.1.1.1 ABO identical

Donor blood group	Eligible transplant candidates
A	A
B	B
AB	AB
O	O

#### 7.2.2.1.1.2 ABO compatible

Donor blood group	Eligible transplant candidates
A	A and AB
B	B and AB
AB	AB
O	O, A, B, AB

### 7.2.2.2 Transplant candidate Ranking<sup>8</sup>

#### 7.2.2.2.1 Immunized program for pancreas recipients

In pancreas allocation pancreas and pancreas-kidney recipients with the lowest probability to receive an organ. should be prioritized over the other recipients.

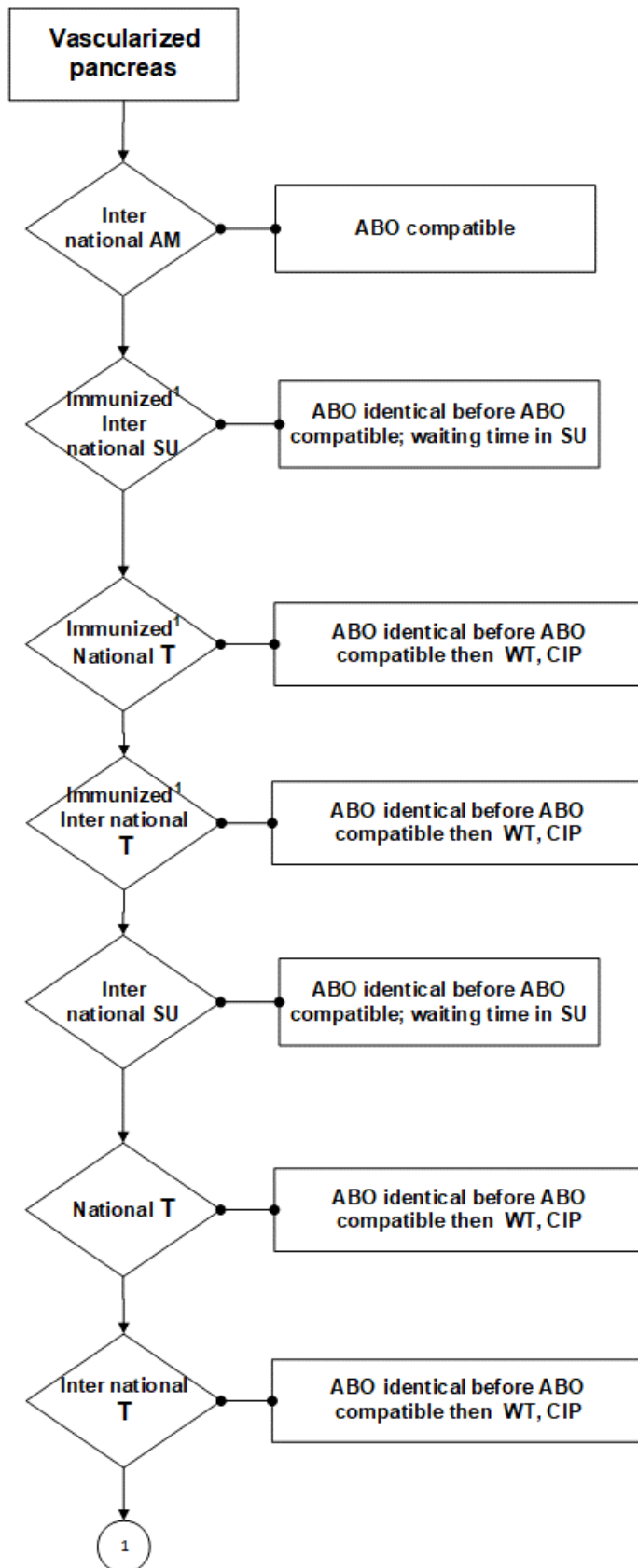
For inclusion in the program, the chance of the immunized patient to receive an organ, based on the percentage of ABO compatible donors with no unacceptable HLA antigens in the pool (ETRL reference database v3.0) should be less than 10% as otherwise the recipient can be transplanted without the advantage of the immunized program.

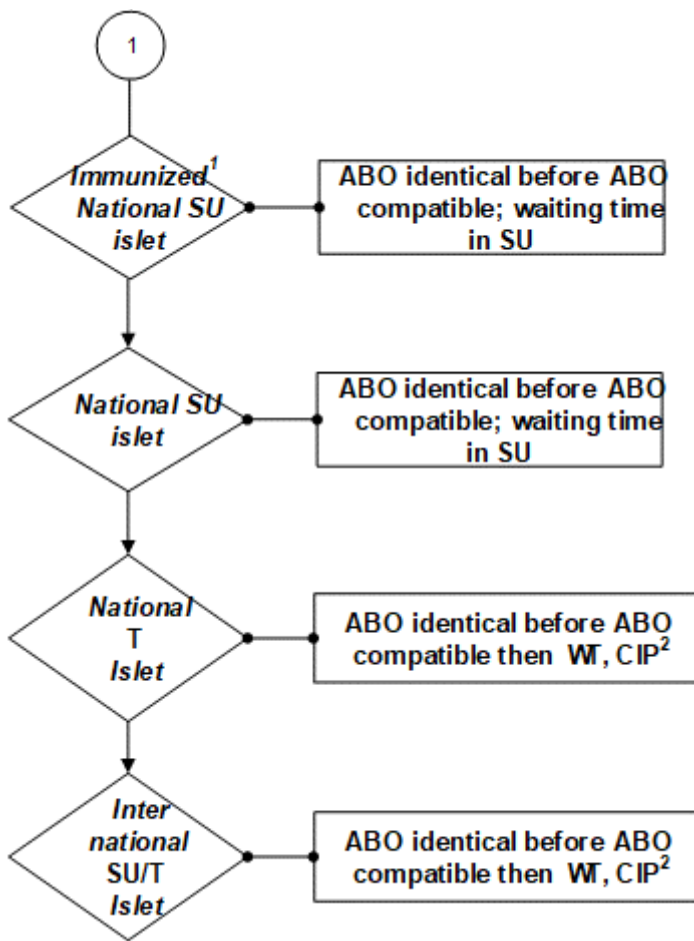
In case a patient receives plasmapheresis therapy, the pre-intervention chance to receive an organ will be considered for defining the match rank position.

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<sup>8</sup> R-PAC 01.18 Approved by the Board on 14-05-2018, Implemented on 14-07-2020

7.2.2.2.2 Flowchart 1 - Vascularized pancreas allocation.

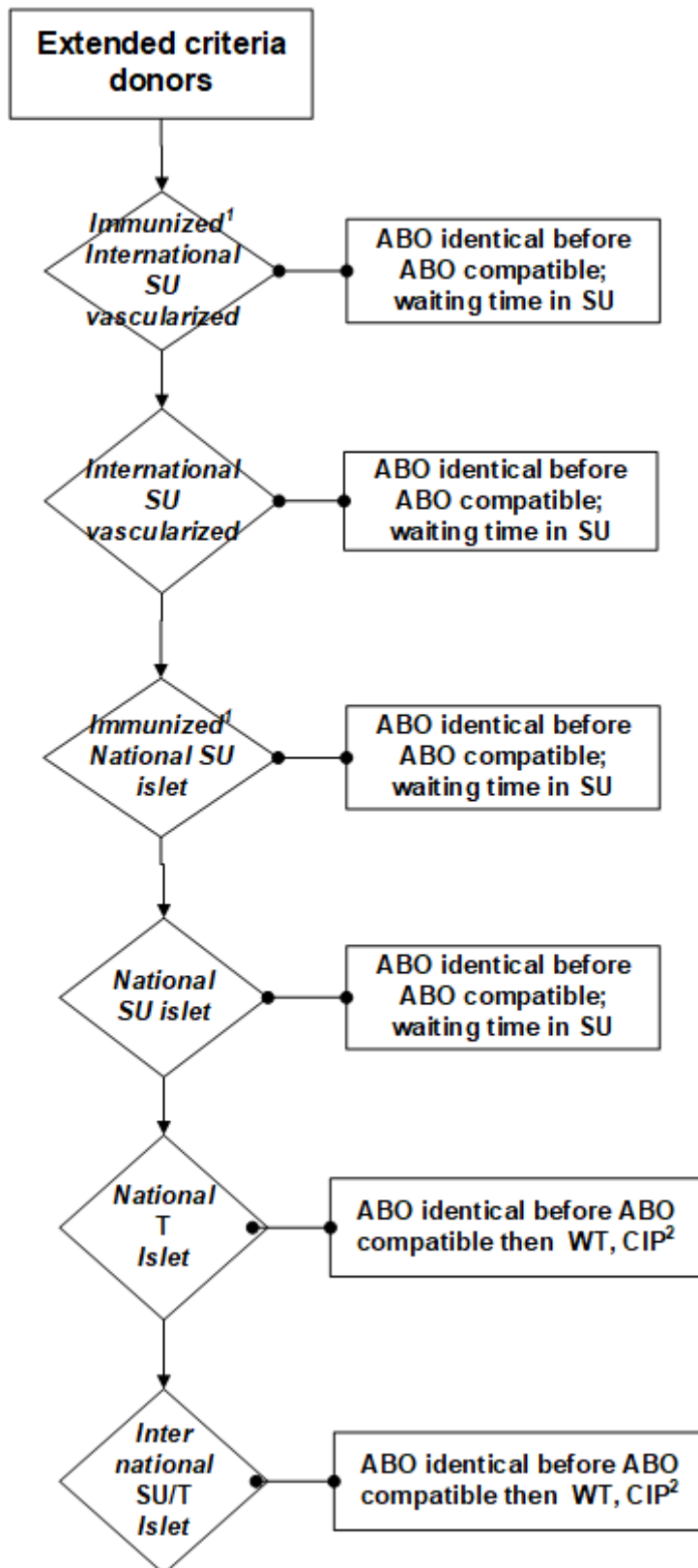




<sup>1</sup> Immunized program for pancreas recipients (see 7.2.2.2.1) <sup>9</sup>

<sup>2</sup> Center offer according to the highest ranked recipient

7.2.2.2.3 Flowchart 2 – Allocation of extended criteria donors



<sup>1</sup> Immunized program for pancreas recipients (see 7.2.2.2.1)

<sup>2</sup> Center offer according to the highest ranked recipient

#### 7.2.2.2.4 Point score system

Elective (T) transplant candidates are ranked, within the ABO blood group rules with the help of a point score system. In order to keep the cold ischemia as short as possible, points are added to the waiting time when the donor and the transplant candidate share a region (See 7.2.2.2.4.2):. The transplant candidate with the highest point score is ranked on top of the tier concerned. All offers, primary or back-up, are made in descending order. Points are assigned as follows:

- Waiting time (see §7.2.2.2.4.1):
  - 3<sup>10</sup> points/day
- Distance:
  - Same Region
    - 2<sup>10</sup> points/day
  - Other Region:
    - 0 points
- Pancreas exchange balance  
In case a pancreas cannot be allocated nationally, it will be offered to the other ET member states. In this case in addition to the waiting time points pancreas exchange balance points will be considered for the ranking (see § 7.2.2.3 National Net Pancreas Exchange Balance)

##### 7.2.2.2.4.1 Waiting time

For every day on the waiting list, the transplant candidate is given three<sup>10</sup> points. Waiting time starts with the first day that the transplant candidate had an active urgency (T or SU). Each day the transplant candidate is on the waiting list in an active urgency a waiting time day will be added to the previously accumulated waiting time in an active status. No distinction will be made in the accumulated waiting time between patients in the urgency T or SU.

While in urgency NT transplant candidates can accumulate waiting time points for a maximum of up to 30 days during their total waiting time period (see 7.1.5)

##### 7.2.2.2.4.2 ET countries/regions

The Eurotransplant region is divided into 7 countries for pancreas procurement. In addition, Germany further is divided into 7 procurement subregions.

To minimize the CIP, national transplant candidates are prioritized over international transplant candidates.

Pancreas transplant candidates in the same German region as the donor achieve region calculated points in the match to reduce the cold ischemic period. See 7.2.1

##### 7.2.2.2.4.2.1 Belgium/Luxemburg

Belgium and Luxemburg are considered one procurement region as Luxemburg has no pancreas transplantation program.

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<sup>10</sup> For technical (rounding off) reasons allocation points are multiplied by 3

#### 7.2.2.2.4.2.2 Germany

Germany consists of the following seven donor subregions:

GBYOR	Bayern
GBWOR	Baden-Württemberg
GMIOR	Mitte
GOSOR	Ost
GNOOR	Nord-Ost
GNDOR	Nord
GNWOR	Nordrhein-Westfalen

#### 7.2.2.2.4.2.3 Other member states

All other member states (Austria, Croatia, Hungary, Slovenia and The Netherlands) are considered individual procurement regions.

### 7.2.2.3 National Net Pancreas Exchange Balance

Once every day the national balance is calculated over a 365 days period prior to the respective day. Individually for each ET country<sup>11</sup> a national balance is calculated.

The national balance is calculated as import minus export.

\**Import* is defined as the number of pancreas transplanted within the country and procured outside the respective country

\**Export* is defined as the number of pancreas transplanted outside the country and procured within the respective country

Formula:

National Balance Points = (highest current national balance of all pancreas transplanting countries – transplant candidate country balance) x 30<sup>12</sup>

Example of the pancreas exchange balance on a certain day:

- Austria	-1
- Belgium+Luxembourg	-5
- Netherlands	-2
- Croatia	-1
- Germany	+12
- Hungary	0
- Slovenia	-3

The balance points for transplant candidates in the countries of regions as mentioned:

- Austria	$(12 - (-1)) \times 30 = 390$
- Belgium+Luxembourg	$(12 - (-5)) \times 30 = 510$
- Netherlands	$(12 - (-2)) \times 30 = 420$
- Croatia	$(12 - (-1)) \times 30 = 390$
- Germany	$(12 - 12) \times 30 = 0$
- Hungary	$(12 - 0) \times 30 = 360$
- Slovenia	$(12 - (-3)) \times 30 = 450$

<sup>11</sup> In the calculation of the National Net Pancreas Exchange Balance, Belgium & Luxemburg are considered as one country.

<sup>12</sup> For technical (rounding off) reasons allocation points are multiplied by 3

#### **7.2.2.4 Filtering on donor profile**

For the individual transplant candidate or the entire waiting list centers can enter donor specific requirements like Age, Virology, Other transmittable diseases etc. For further information see Chapter 3 Allocation. § 3.2.2

#### **7.2.2.5 Deviant national regulations**

##### *7.2.2.5.1 Austria*

Organ offers from Austrian donors are center offers for the donor center or the assigned center. If a pancreas can't be allocated in the donor center, ET shall offer the pancreas patient-oriented according to the match list

##### *7.2.2.5.2 Belgium*

The HLA-typing is mandatory for the pancreas allocation.  
In case of a Belgian donor and Belgian recipients on the match, the allocation starts as soon as HLA is known. In case of a non-Belgian donor without HLA-typing at the time of offering, only the Belgian ACO and SU transplant candidates will receive an offer. Belgian transplant candidates in urgency T will be excluded from the allocation in case of a non-Belgian donor without HLA-typing at the time of offering.

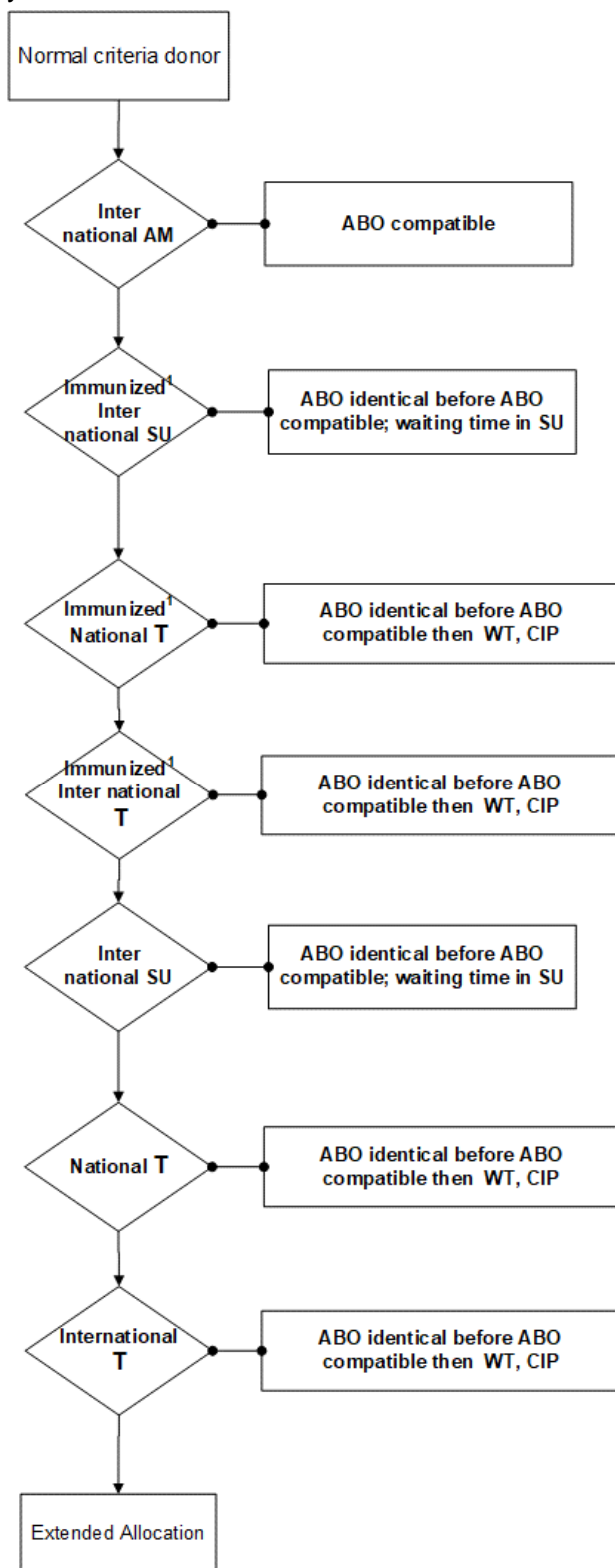
##### *7.2.2.5.3 Germany*

Islets are considered in Germany as tissue and herewith beyond the competence of Eurotransplant. Therefore, the German pancreas donors with age < 5 or age > 50 years or BMI ≥ 30 are not offered for islet transplantation. They will be allocated (after offering to ACO or SU transplant candidates) as extended criteria donors according to the vascularized pancreas extended allocation (see 7.2.2.5.3.2). If an Extended Allocation was not successful, a center-oriented rescue allocation will be started.

Non-German islet-donors will not be offered to German transplant candidates.

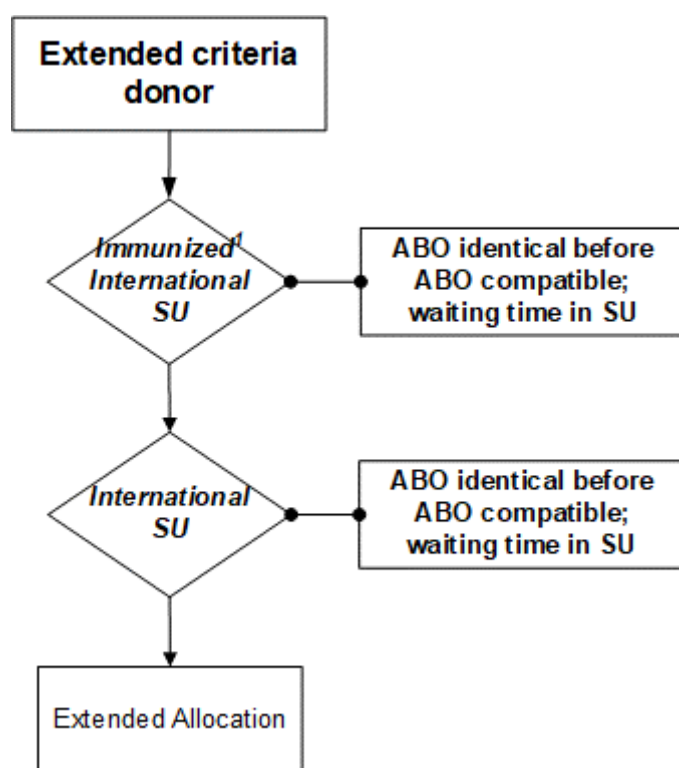


7.2.2.5.3.1 Flowchart 3 - Vascularized pancreas allocation German donor  $\geq 5$  and  $\leq 50$  years and BMI  $< 30$



<sup>1</sup> Immunized program for pancreas recipients (see 7.2.2.2.1)

### 7.2.2.5.3.2 Flowchart 4 - Vascularized pancreas allocation German donor $\geq 5$ and $\leq 50$ and BMI $\geq 30$ ; or $> 50$ years



<sup>1</sup> Immunized program for pancreas recipients (see 7.2.2.2.1)

### 7.2.2.6 The Netherlands

The maximum age limit of a Dutch DBD vascularized pancreas donor is 60 years, therefore all Dutch DBD donors  $\leq 60$  years are allocated as vascularized pancreas donors.

## 7.3 P-PASS

The P-PASS (Preprocurement Pancreas Allocation Suitability Score) has been implemented in 2009 in order to facilitate recognition of a suitable pancreas donor. A combination of 9 clinical parameters available at time of donor reporting, including age, BMI, ICU stay, cardiac arrest, sodium, amylase, lipase, (nor)adrenaline and dobutamine/dopamine are calculated, providing a P-PASS score between 9 and 27 for each donor. Study<sup>13</sup> showed pancreas donor acceptance with P-PASS  $< 17$  three times higher than pancreas donors with P-PASS equal or above 17.

In Eurotransplant at least all donors with a P-PASS  $< 17$  pancreas should be considered for donation and transplantation.

<sup>13</sup> How to recognize a suitable pancreas donor: a Eurotransplant study of preprocurement factors, Vinkers MT, Rahmel AO, Transplantation Proceedings, 40, 1275-1278 (2008)

### 7.3.1 P-Pass factors

Item	1 point	2 points	3 points
Age (years) (x2)	<30	30-40	≥ 40
BMI (kg/m <sup>2</sup> ) (x2)	<20	20-25	≥ 25
ICU-stay (days)	<3	3-7	≥ 7
Cardiac arrest (min)	No	Yes, < 5	Yes, ≥ 5
Sodium (mmol/L)	<155	155-160	≥ 160
Amylase (U/l) or Lipase (U/l)	<130 <160	130-390 160-480	≥ 390 ≥ 480
(Nor)adrenaline (γ) or Dobuta-/Dopamine (γ)	No No	< 0.05 < 10	≥ 0.05 ≥ 10

## 7.4 Combined Pancreas intestine procurement

If from one donor both pancreas and intestine are reported to ET, the intestine will always be allocated first. Intestine and pancreas should always be offered both according to the match (if both organs were reported to ET). Every effort should be made to prevent loss of the pancreas for anatomical/surgical and/or logistical reasons<sup>14</sup>.

In case proper procurement of both intestine and pancreas is not possible, the intestine graft has priority. In such cases a report has to be sent to ELIAC and to EPAC by the procuring surgeon<sup>15</sup>.

## 7.5 Allocation of vessels in the toolkit

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 acceptance<sup>16</sup>.

## 7.6 Allocation of the Donation after Cardiocirculatory Death (DCD) donor

The Netherlands have a Donation after Cardiocirculatory Death (DCD) pancreas transplantation program, including vascularized pancreas (donor age ≤ 50 years and BMI < 30 Kg/m<sup>2</sup>) and pancreatic islets transplantation.

Belgium has a DCD pancreatic islets transplantation program. The other Eurotransplant countries do not perform DCD vascularized pancreas or islets transplantation.

<sup>14</sup> Recommendation R-LAC02.09

<sup>15</sup> Policy P-LAC08.16, result of the intestine allocation consensus meeting June 22, 2016

<sup>16</sup> Policy P-LAC10.16, result of the intestine allocation consensus meeting June 22, 2016

## 7.7 Forms

All forms can be found and downloaded from the section Forms of the Library of the member site at [Eurotransplant Pancreas Forms](#).

## 7.8 Appendix

### 7.8.1 National SU islet criteria

#### 7.8.1.1 Belgium

SU status for islets should be granted to type 1 diabetic patients who:

- Need re-transplantation within a shortest time possible because of an insufficient primary graft yield and
- Participate in a clinical islet transplant study aiming at efficacy as primary endpoint. The protocol of the study must be submitted to an institutional review board and ethical committee.

The letter of SU should explain the need for re-transplantation and includes the name of the study, an official registration number (EutraCT or other) and the approval by a review board and ethical committee.

#### 7.8.1.2 Other countries

No national SU islet criteria are indicated by the Netherlands or Austria.