Annual Report

2019

Eurotransplant

Cooperating saves lives

Contents

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Foreword

Dear reader,

We are proud to offer you the 2019, digital edition of the Eurotransplant Annual Report. In this environmentally friendly, digital report you can easily browse via the top menu. Weblinks are added to facilitate in finding more specific information on relevant websites. The report provides an overview of the key statistics on organ donation, allocation and transplantation in all Eurotransplant countries.
You can also read in the report activities within Eurotransplant that took place, decisions that were made as well as the financial status. Comprehensive and more detailed annual statistics are online available via statistics.eurotransplant.org.

Together on a life saving mission

All healthcare providers work together 24 hours a day with the same common goal to ensure that the best possible match is made between available donor organs and patients on the transplant waiting list. In this way, a growing number of patients have a healthy life and a better quality of life. The cooperation between Eurotransplant and non Eurotransplant countries is of great value. Through cooperation, data exchange and monitoring, we also make a joint contribution to transplant medicine. We would like to take this opportunity to express our gratitude for the good and fruitful cooperation for the benefit of all patients awaiting their life-saving organ transplants.

International organ exchange

In 2019, 6981 organs from 2042 deceased donors were used for transplantation for patients on the waiting list of Eurotransplant. This decrease of the number of reported donors is 5,5% compared to 2018 (2159). 21.5% of organs were exchanged cross-border between the Eurotransplant member states. Thanks to this international exchange, a suitable donor organ could be found for many patients in the different Eurotransplant member states. This specifically applies to patients in specific groups such as children, patients with acute organ failure (high urgency patients) as well as patients with a complex medical background (highly immunized patients). For these specific patient groups the chance of receiving a suitable organ in time is significantly higher, due to the cooperation within Eurotransplant.

Towards a new Governance structure

After almost five years of discussion, adaptations and preparations, the goal of the Eurotransplant Board has been achieved: a new Eurotransplant governance structure came into effect in January 2020.
2019 was dominated by the implementation of the new, democratic structure that meets current standards, obligations and best practices in non-profit governance. Following the approval of the General Assembly in October 2019, the new structure consisting of a Supervisory Board, Board of Management, a Council of

Administration and a Council of Medicine and Science, came into effect shortly after. With this structure, the national authorities, the national transplant societies and the Eurotransplant transplant programs have input in the policy and practice of Eurotransplant. Detailed information on the new governance structure can be found on the renewed Eurotransplant public website eurotransplant.org/about-eurotransplant/organization/

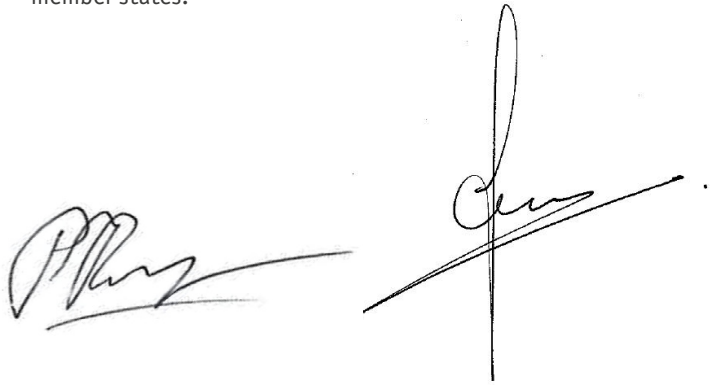
Relocation Eurotransplant office

Moving the Eurotransplant office to another location in Leiden played an important role in 2019. Due to the efforts of all our employees and the excellent preparations, the relocation was successfully completed in December 2019 without interrupting the 24/7 allocation process.

Loss of Prof. Dr. Xavier Rogiers

On November 20, 2019 Eurotransplant's vice president and long-time board member Prof. Dr. Xavier Rogiers passed away. He will be sorely missed by all of us. Prof. Dr. Rogiers made invaluable contributions to setting quality standards in liver and intestinal transplantation and allocation, developing the all-important data registry, and lately, having intense debate and negotiation on the new Eurotransplant governance structure. We will remember him as a good friend, a wise advisor and a tireless supporter of cooperation.

We are looking forward to a continuation of our good cooperation with all partners in our eight member states.



Dr. Peter Branger
General Director

Serge Vogelaar, MD
Medical Director

1 The Eurotransplant community

"I am able to lead a normal life thanks to the transplant."

The Eurotransplant community

The Stichting Eurotransplant International Foundation is a non-profit international organization that facilitates allocation and cross border exchange of deceased donor organs for its members: Austria, Belgium, Croatia, Germany, Hungary, Luxembourg, the Netherlands and Slovenia. In this international collaborative framework, the participants include all transplant hospitals, tissue typing laboratories and hospitals where organ donations take place. The Eurotransplant region is serving a total population of around 137 million people. The organizational structure is democratic, with a Board of Management, a Management Team, an Assembly, a Council, eight Advisory Committees of which four organ specific (kidney, liver/intestine, heart/lung, pancreas) and four in charge of organ procurement, tissue typing, ethics and finance as well as an Information Services Working Group (ISWG) and an Eurotransplant Registry Advisory Committee (ERAC). With this structure, the national authorities in the member countries, the national transplant societies and the Eurotransplant transplant programs have input in the policy and practice of Eurotransplant International Foundation. Information on the current organizational structure can be found at eurotransplant.org/about-eurotransplant/organization/

1.1 Mission

Organ transplantation offers life-saving and quality-of-life enhancing treatment options to patients with end-stage organ failure. Aiming to fulfill this potential, Eurotransplant was established and acts as a mediator between donor hospitals and transplant centers, for the benefit of such patients.
As such, Eurotransplant manages the complex process of achieving the best possible match between available donor organs and patients on the transplant waiting list. Eurotransplant acts transparently and in accordance with the regulations and ethical principles of the European Union. This means that Eurotransplant fully complies with the national legislation of the Member States.
The Eurotransplant Foundation is actively involved in developing best practice recommendations and policies to further improve organ allocation and transplantation results, based on robust data collection and state-of-the-art scientific research.

To achieve its mission Eurotransplant has set the following goals:

- To achieve an optimal use of available donor organs and tissues;
- To secure a transparent, objective and fair allocation system, in compliance with national rules, based upon medical and ethical criteria;
- To support donor procurement to increase the supply of donor organs and tissues;
- To further improve the results of transplantation through collection and evaluation of donor, recipient, allocation, transplantation and follow-up data, scientific research and to publish and present these results;
- The promotion, support and coordination of organ donation and transplantation in the broadest sense of terms.

More information on the Eurotransplant's aims can be found on eurotransplant.org/about-eurotransplant/eurotransplants-aims

1.2 Method of working

The allocation of organs is an information-intensive process which depends on an effective and efficient information and communication system. Therefore Eurotransplant continuously develops and maintains information systems that are required to support this process. These systems process the vast amount of information, support the analysis of processes, of allocation rules and of other information and transform this into effective information systems. It is an integrated automated system designed to collect, store and share information pertinent to the services provided by Eurotransplant.

Eurotransplant adequately tests all procedures and systems and maintains a quality system to assure this.

Eurotransplant is committed to protecting the privacy of individuals and ensuring the security of their personal health information. It has designed a privacy and security framework which enables an effective coordination of privacy and security policies. The Information Security Policy and the data policies are living documents which are updated as the privacy and security programs evolve over time. The documents are available on the Eurotransplant website eurotransplant.org/about-eurotransplant/policies/

1.3 Finances

The activities of Eurotransplant are financed by the health insurance companies in the participating countries. The organization's budget and the resulting registration fees are negotiated annually with the financers and/or the national competent authorities.

2 Eurotransplant: donation, allocation, transplantation and waiting lists

"At the end of the day, it is not the exact number of organ donations and transplants which matter. It is more important to increase the number of saved quality-adjusted life years."

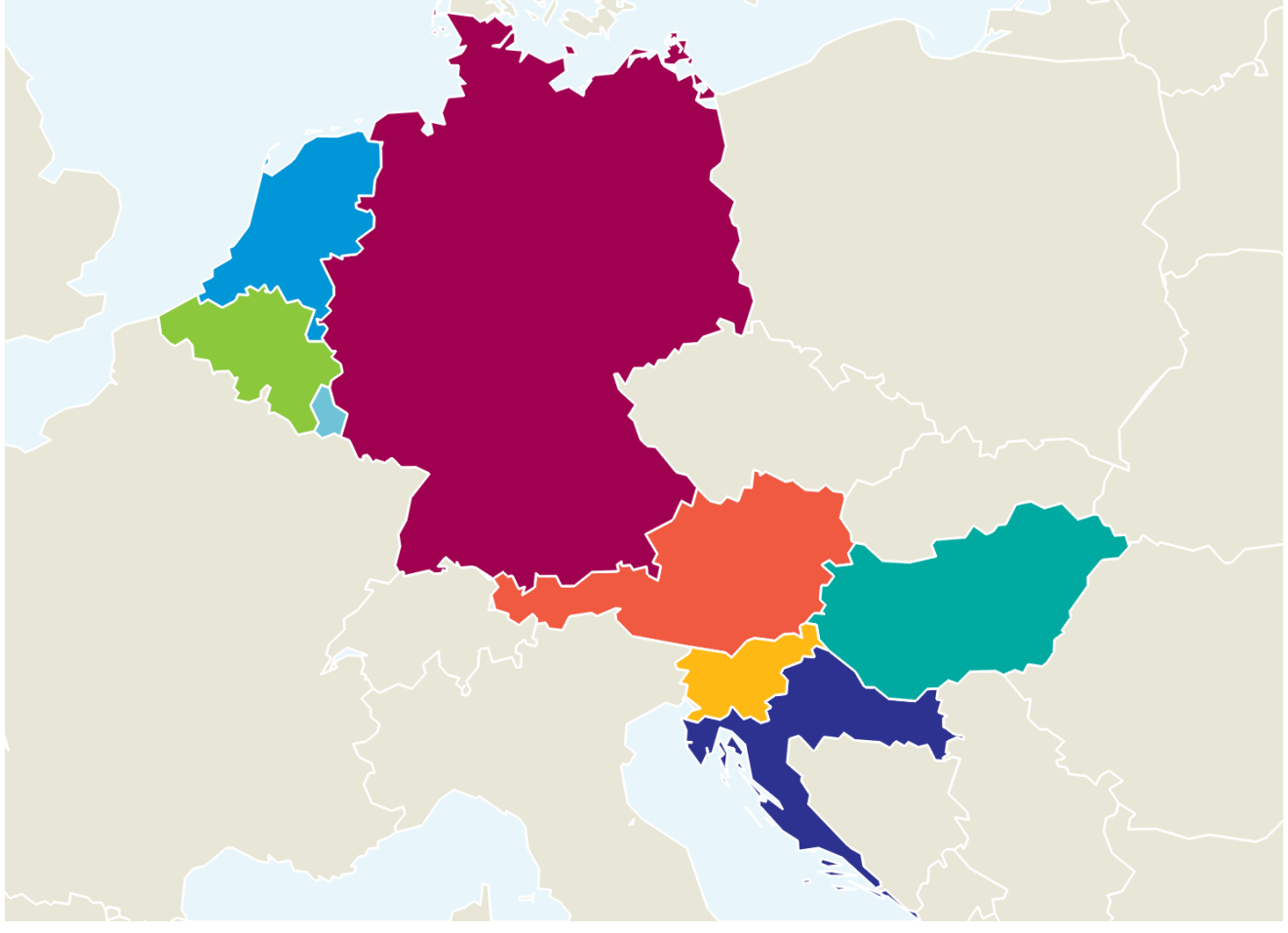
Eurotransplant: donation, allocation, transplantation and waiting lists

This chapter presents a statistical overview of the donation, allocation, transplantation and waiting list management activities of Eurotransplant and the member states in 2019, along with historical trends.

This Annual Report presents key statistics per country and per organ. Detailed information is publicly available on-line in the Eurotransplant Statistics Library at statistics.eurotransplant.org (Eurotransplant members have access to more specific information).

Note: 'Collections' of reports are available on-line in the Eurotransplant Statistics Library, that correspond to the 'Statistical Report' and Statistics Chapters in the Annual Reports of previous years.

Eurotransplant Member States



'Non-ET' in this chapter refers to other countries (of which 17 over the years) with which Eurotransplant has an agreement whereby organs which cannot be allocated in a country can be offered to a suitable recipient in another country.

A list of the European Organ Exchange Organizations can be found on the Eurotransplant website: eurotransplant.org/about-eurotransplant/international-organ-exchange/

Clickable table of contents

Below a clickable table of contents which facilitates in direct navigation to specific statistics.

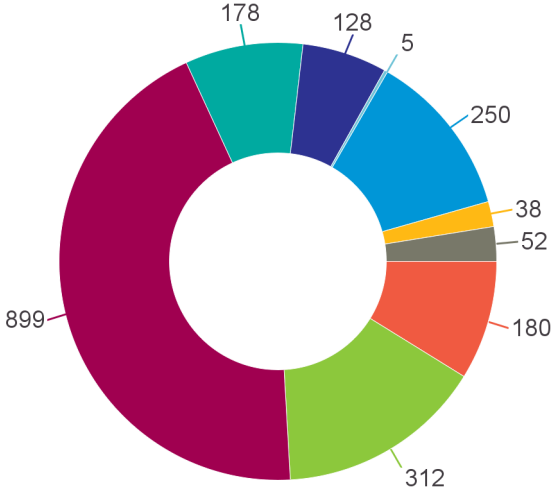
2.1 Deceased donors used for transplantion

Eurotransplant reports on the number of donors used, or Utilized donors, where at least one organ has been used for transplantation.

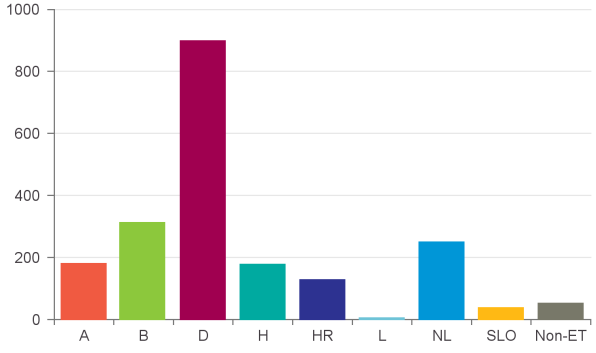
Eurotransplant does not report on the number of Actual donors, where an organ has been recovered for the purposes of transplantation, but not necessarily transplanted. The number of Actual donors is slightly higher than the number of Utilized donors.

Donors are reported by the year in which the donor was reported to Eurotransplant for organ allocation. Transplants are reported by the year in which the transplant took place.

2.1.1 Deceased donors (any organ) used for transplant in Eurotransplant in 2019, by donor country



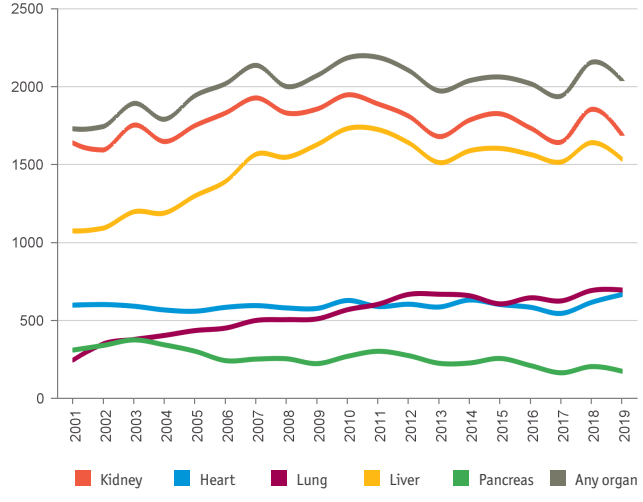
2.1.2 Deceased donors (any organ) used for transplant in Eurotransplant in 2019, by donor country



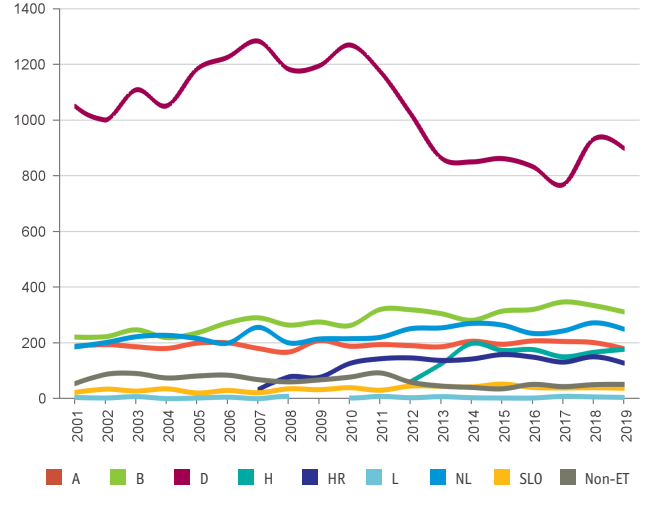
2.1.3 Deceased donors used for transplant in Eurotransplant in 2019, by donor country

	A	B	D	H	HR	L	NL	SLO	Non-ET	Total
Kidney	159	228	798	151	89	4	232	31		**1692**
Heart	72	87	324	79	34	3	40	14	16	**669**
Lung	76	114	320	33	17	3	96	9	30	**698**
Liver	134	267	705	108	119	4	162	24	13	**1536**
Pancreas	15	25	88	5	5	1	38			**177**
Intestine		5	5	1						**11**
Any organ	180	312	899	178	128	5	250	38	52	**2042**

2.1.4 Deceased donors used for transplant in Eurotransplant, by organ

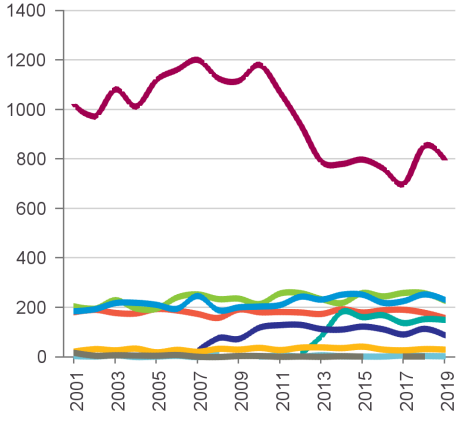


2.1.5 Deceased donors (any organ) used for transplant in Eurotransplant, by donor country

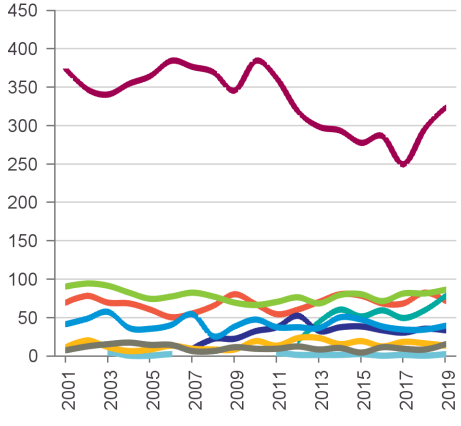


2.1.6 Deceased donors used for transplant in Eurotransplant, by donor country

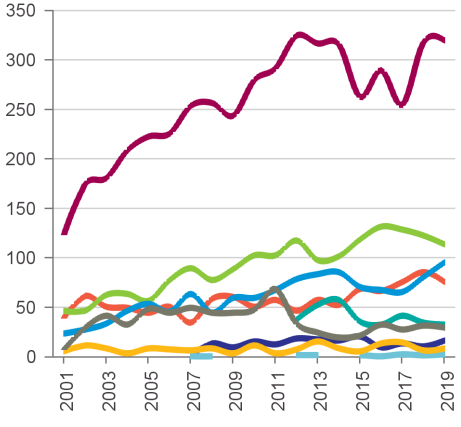
Kidney donors



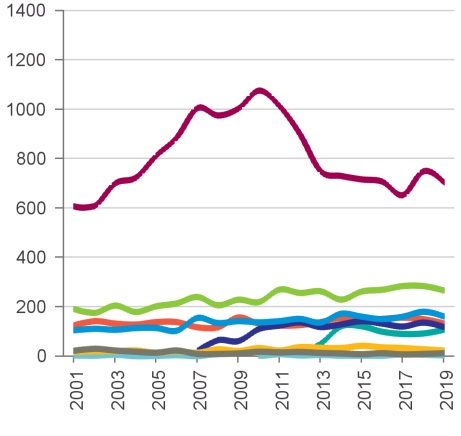
Heart donors



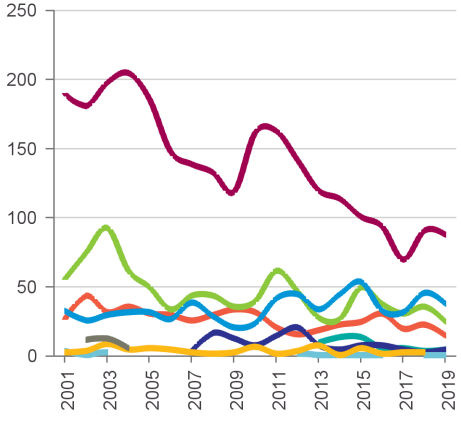
Lung donors



Liver donors

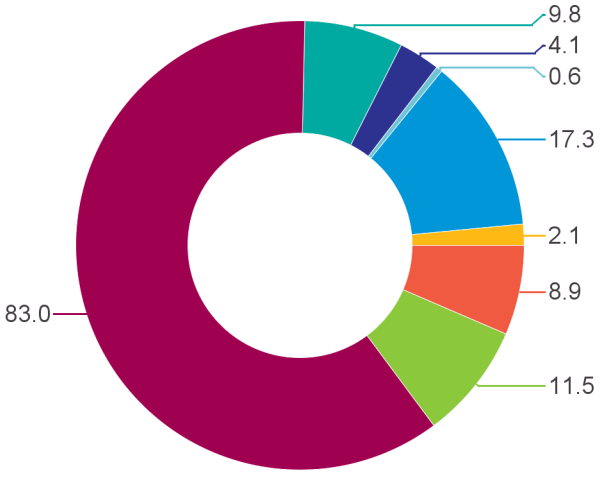


Pancreas donors

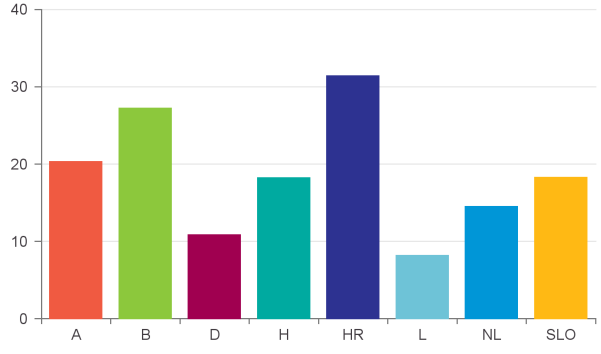


2.2 Donation rate (deceased donors)

2.2.1 Population (millions) of Eurotransplant member states in 2019



2.2.2 Deceased donors used for transplant in Eurotransplant in 2019, per million population, by donor country

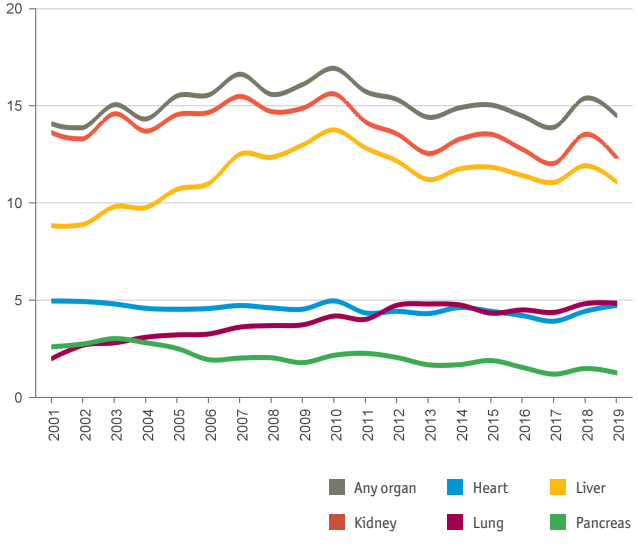


2.2.3 Deceased donors used for transplant in Eurotransplant in 2019, by donor country

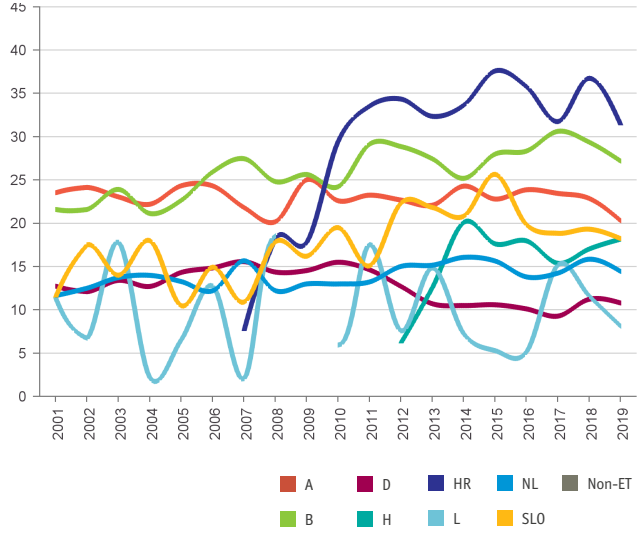
	A	B	D	H	HR	L	NL	SLO	Total
Donors used	180	312	899	178	128	5	250	38	**1990**
Population (millions)	8.9	11.5	83.0	9.8	4.1	0.6	17.3	2.1	**137.2**
Donors per million population	**20.3**	**27.2**	**10.8**	**18.2**	**31.4**	**8.1**	**14.5**	**18.3**	**14.5**

Population as of 01.01.2019 (source:eurostat)

2.2.4 Deceased donors used for transplant in Eurotransplant, per million population, by organ

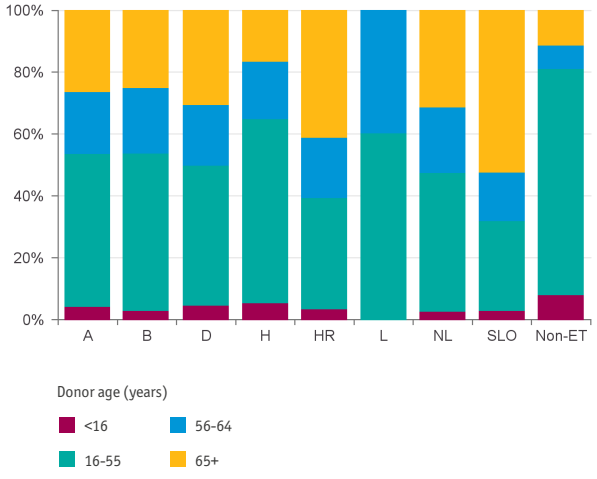


2.2.5 Deceased donors (any organ) used for transplant in Eurotransplant, per million population, by donor country



2.3 Donor age (deceased donors)

2.3.1 Age distribution of deceased donors used for transplant (any organ) in Eurotransplant in 2019, by donor country



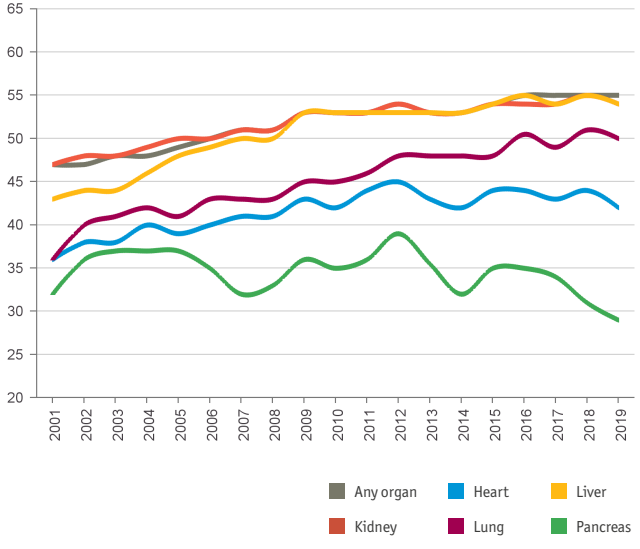
2.3.2 Age distribution of deceased donors used for transplant (any organ) in Eurotransplant in 2019, by donor country

Donor age (years)	A	B	D	H	HR	L	NL	SLO	Non-ET	All-ET
<16	7	8	39	9	4		6	1	4	**78**
16-55	89	159	407	106	46	3	112	11	38	**971**
56-64	36	66	176	33	25	2	53	6	4	**401**
65+	48	79	277	30	53		79	20	6	**592**
Total	**180**	**312**	**899**	**178**	**128**	**5**	**250**	**38**	**52**	**2042**

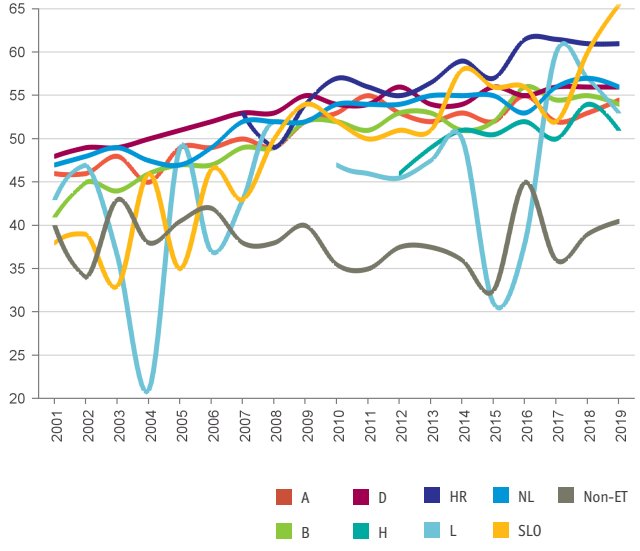
2.3.3 Median age (years) of deceased donors used for transplant in Eurotransplant in 2019, by donor country, by organ

Organ	A	B	D	H	HR	L	NL	SLO	Non-ET	All-ET
Kidney	53	50	54	51	55	56	56	63		**54**
Heart	45	41	41	41	41	53	49	51	38	**42**
Lung	48	51	50	43	38	52	52	51	46	**50**
Liver	54	54	55	49	61	53	53	69	33	**54**
Pancreas	32	34	25	23	16	23	35			**29**
Any organ	**55**	**54**	**56**	**51**	**61**	**53**	**56**	**66**	**41**	**55**

2.3.4 Median age (years) of deceased donors used for transplant in Eurotransplant, by organ



2.3.5 Median age (years) of deceased donors used for transplant (any organ) in Eurotransplant, by donor country



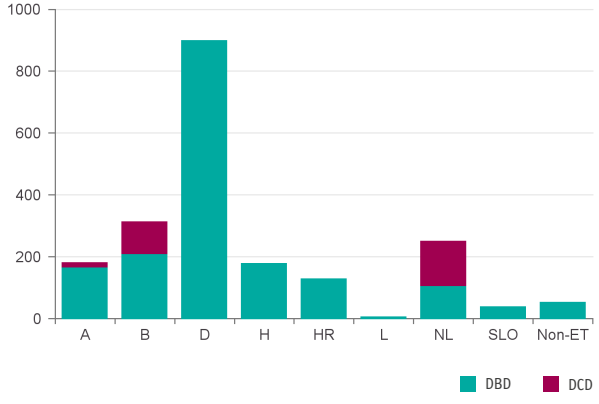
2.4 DBD/DCD donation

DBD = donation after brain death (Heart beating)

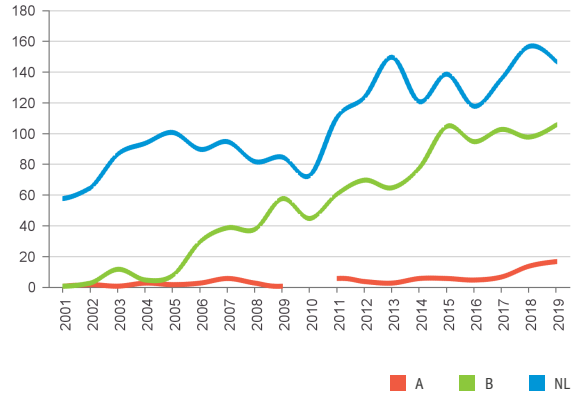
DCD = donation after circulatory death (Non-heart beating)

(DCD donation and transplantation within Eurotransplant is only performed in Austria, Belgium and the Netherlands)

2.4.1 DBD/DCD donors (any organ) used for transplant in Eurotransplant in 2019, by donor country



2.4.3 DCD donors (any organ) used for transplant in Eurotransplant, by donor country



2.4.2 DBD/DCD donors used for transplant in Eurotransplant in 2019, by donor country, by organ

Deceased donors	A	B	D	H	HR	L	NL	SLO	Non-ET	All-ET
DCD kidney	16	68					138			**222**
DCD heart	1	3								**4**
DCD lung	6	32					51			**89**
DCD liver	3	84					72			**159**
DCD pancreas		5					17			**22**
DCD any organ	**17**	**106**					**147**			**270**
DBD any organ	**163**	**206**	**899**	**178**	**128**	**5**	**103**	**38**	**52**	**1772**

2.5 Organ allocation

Organs deemed suitable for transplantation are reported to Eurotransplant for allocation to a suitable recipient. At any stage in the reporting, offering and accepting process, an organ can still be found to be unsuitable for transplantation.

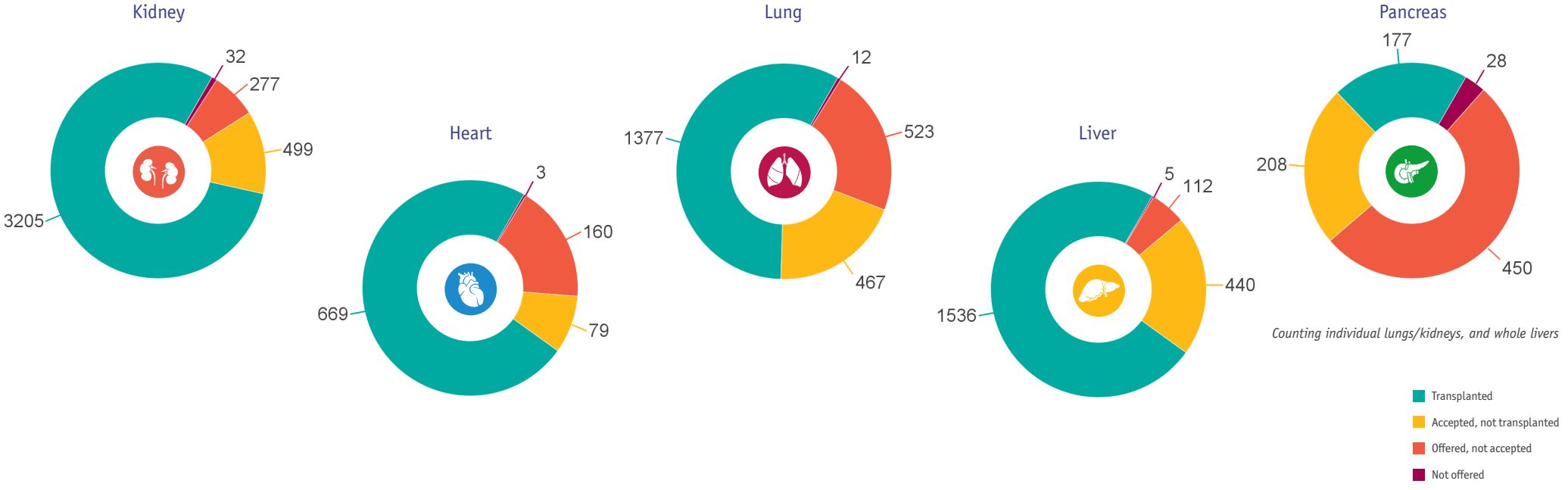
If the standard allocation procedure is not successful, then a 'center rescue' procedure is started, where local transplant centers competitively select a suitable recipient.

2.5.2 Allocation of deceased donor organs in Eurotransplant in 2019

	Donors reported	Organs reported	Organs transplanted	% Organs transplanted	Rescue allocations	% Rescue allocation
Kidney	2018	4013	3205	80%	295	9%
Heart	911	911	669	73%	109	16%
Lung	1192	2379	1377	58%	367	27%
Liver	2093	2093	1536	73%	259	17%
Pancreas	863	863	177	21%	52	29%
Any organ	**2362**	**10259**	**6964**	**68%**	**1082**	**16%**

Counting by year of donor registration

2.5.1 Allocation of deceased donor organs in Eurotransplant in 2019



Counting individual lungs/kidneys, and whole livers

2.6 International organ exchange

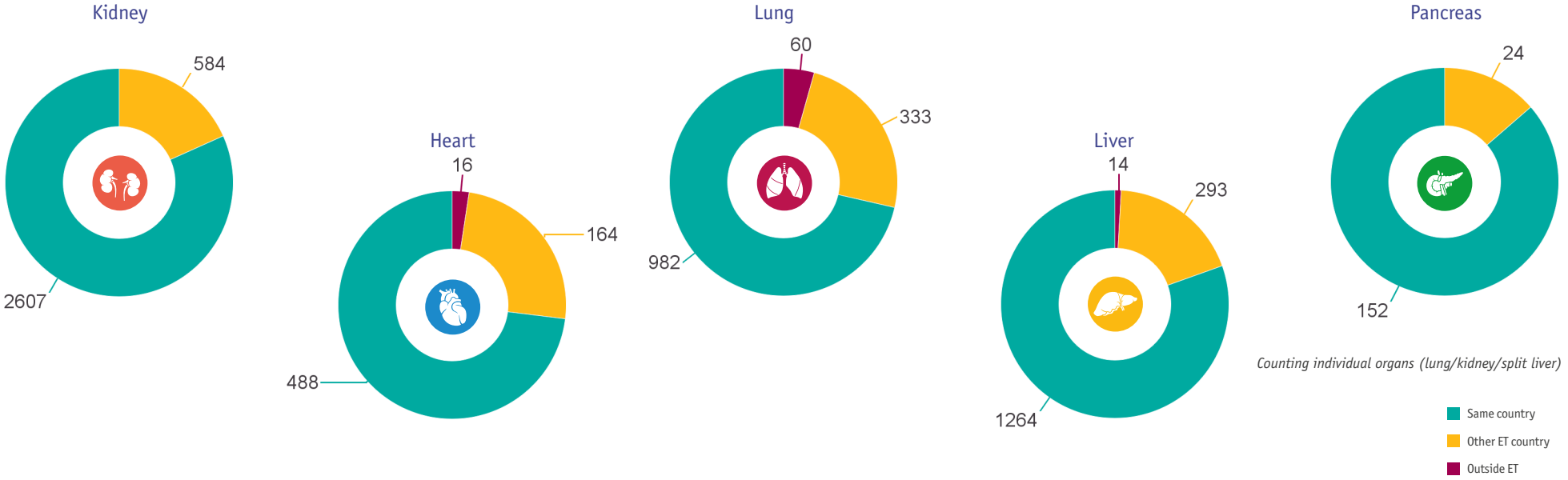
Donor organs are often transplanted in another Eurotransplant member state. This is determined by the Eurotransplant matching algorithms, which are based on rules specified by the organ advisory committees and agreed upon by the competent authorities of the Eurotransplant member states. Cross border organ exchange primarily concerns patients with a high urgency status, pediatric patients, immunized kidney patients, and kidney patients with a '000-mismatch' HLA typing with the donor.

2.6.1 Organs transplanted (deceased donor) in Eurotransplant in 2019, by donor origin

2.6.2 Organs transplanted (deceased donor) in Eurotransplant in 2019, by donor origin

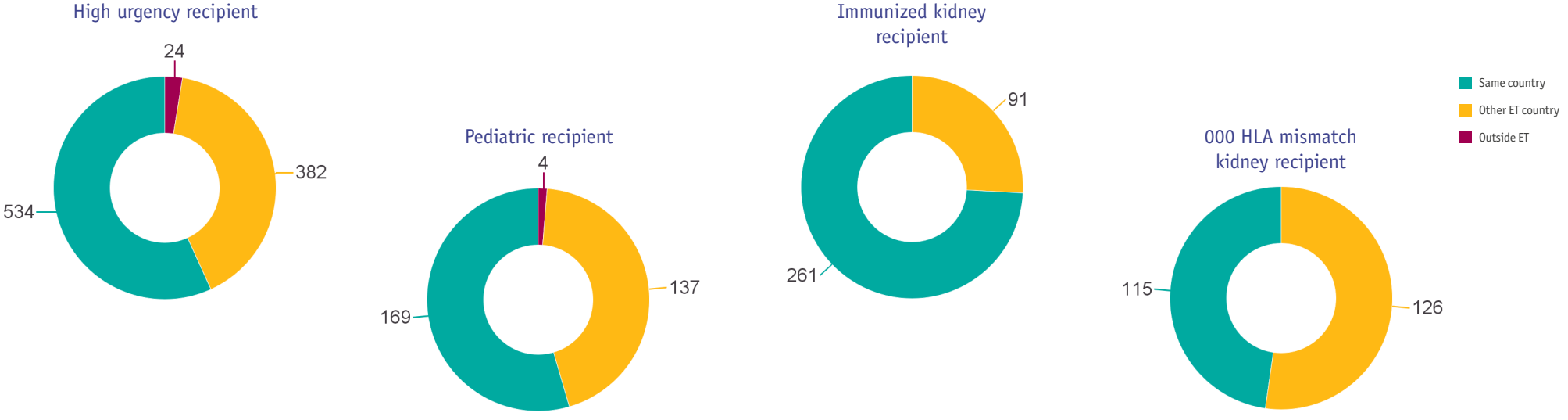
Organ	Same country	Other ET country	Outside ET	Total
Kidney	2607	584		**3191**
Heart	488	164	16	**668**
Lung	982	333	60	**1375**
Liver	1264	293	14	**1571**
Pancreas	152	24		**176**
Intestine	11	0		**11**
Total	**5504**	**1398**	**90**	**6992**

Counting by year of transplant



Counting individual organs (lung/kidney/split liver)

2.6.3 Organs transplanted (deceased donor) in Eurotransplant in 2019, by donor origin - special patient groups



2.6.4 Organs transplanted (deceased donor) in Eurotransplant in 2019, by donor origin - special patient groups

Patient group	Same country	Other ET country	Outside ET	Total transplants
High urgency	534	382	24	**940**
Pediatric	169	137	4	**310**
Immunized (kidney)	261	91		**352**
000 HLA mismatches (kidney)	115	126		**241**

Counting individual organs (lung/kidney/split liver). 'High urgency' includes High LAS.

2.7 Transplants (deceased donor)

Transplants are reported by the year in which the transplant is performed, which can sometimes differ from the year the donor was reported.

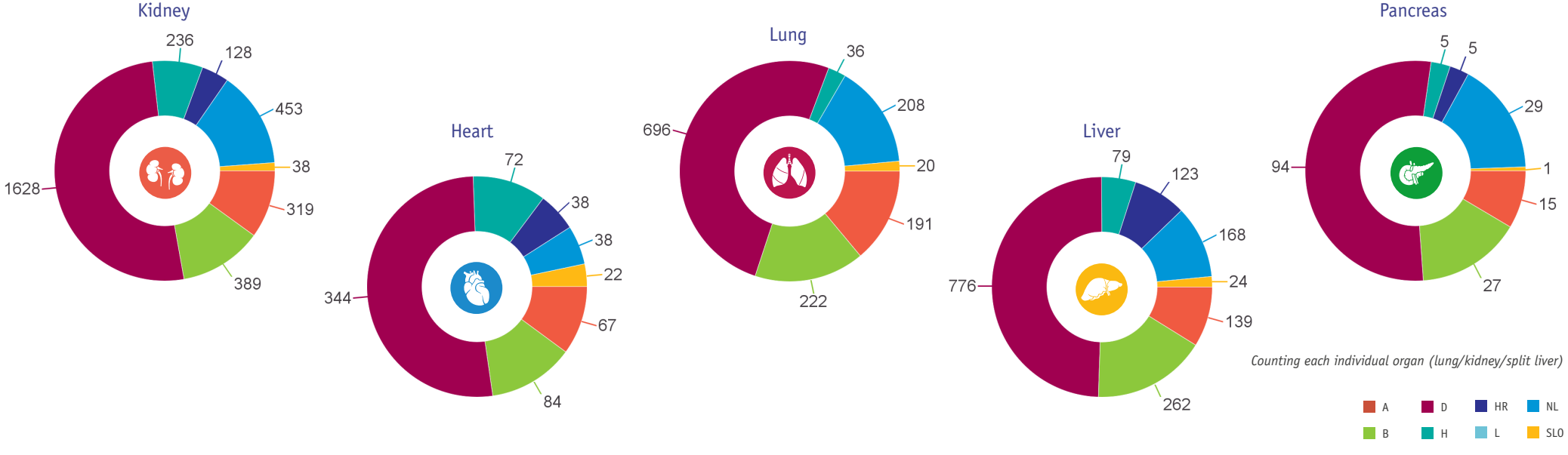
2.7.2 Organs transplanted (deceased donor) in Eurotransplant in 2019, by transplant country

Organ type	A	B	D	H	HR	NL	SLO	Non-ET	Total
Kidney	319	389	1628	236	128	453	38		**3191**
Heart	67	84	344	72	38	38	22	3	**668**
Lung	191	222	696	36		208	20	2	**1375**
Liver	139	262	776	79	123	168	24		**1571**
Pancreas	15	27	94	5	5	29	1		**176**
Intestine	1	3	5			2			**11**
Total	**732**	**987**	**3543**	**428**	**294**	**898**	**105**	**5**	**6992**

Counting each individual organ (lung/kidney/split liver), multiple organ transplants are counted for each organ type

2.7.1 Organs transplanted (deceased donor) in Eurotransplant in 2019, by transplant country*

** no active transplant program in Luxembourg in 2019*

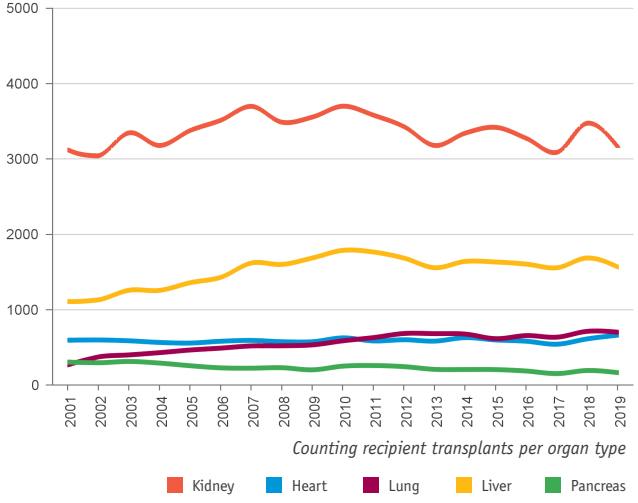


2.7.3 Transplants (deceased donor) in Eurotransplant in 2019, by transplant country, by organ combination

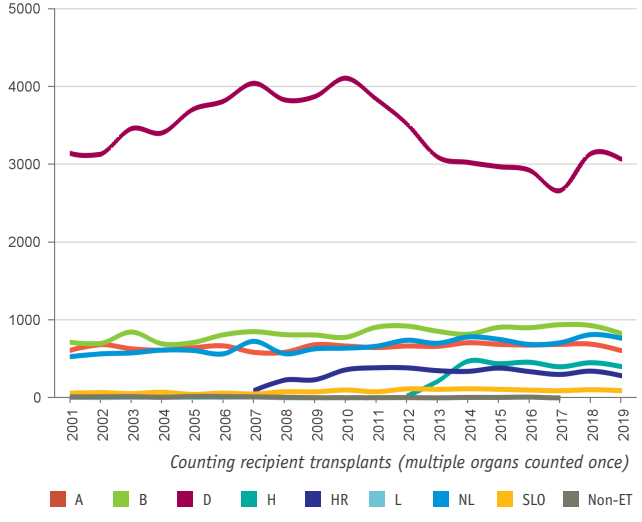
Organ combination	A	B	D	H	HR	NL	SLO	Non-ET	Total
kidney	278	351	1490	229	120	425	36		**2929**
kidney en bloc	11		16			3			**30**
heart	64	80	333	72	38	38	21	3	**649**
lung	7	4	26			2			**39**
lungs	92	106	327	18		103	10	1	**657**
liver	133	224	691	76	120	161	24		**1429**
split liver	2	12	63	1		4			**82**
pancreas	1		3			6			**10**
pancreas islets		10				4			**14**
heart + lungs			6						**6**
heart + liver			1						**1**
heart + kidney	3	4	4				1		**12**
lungs + liver		3	2						**5**
liver + pancreas			1						**1**
liver + pancreas + intestine	1	1	3						**5**
liver + kidney	3	22	13	2	3	3			**46**
split liver + kidney			1						**1**
liver + intestine			1						**1**
pancreas + kidney	13	10	87	5	5	19	1		**140**
kidney + intestine		2	1						**3**
intestine						2			**2**
Total	608	829	3069	403	286	770	93	4	**6062**

Counting recipient transplants (multiple organs counted once)

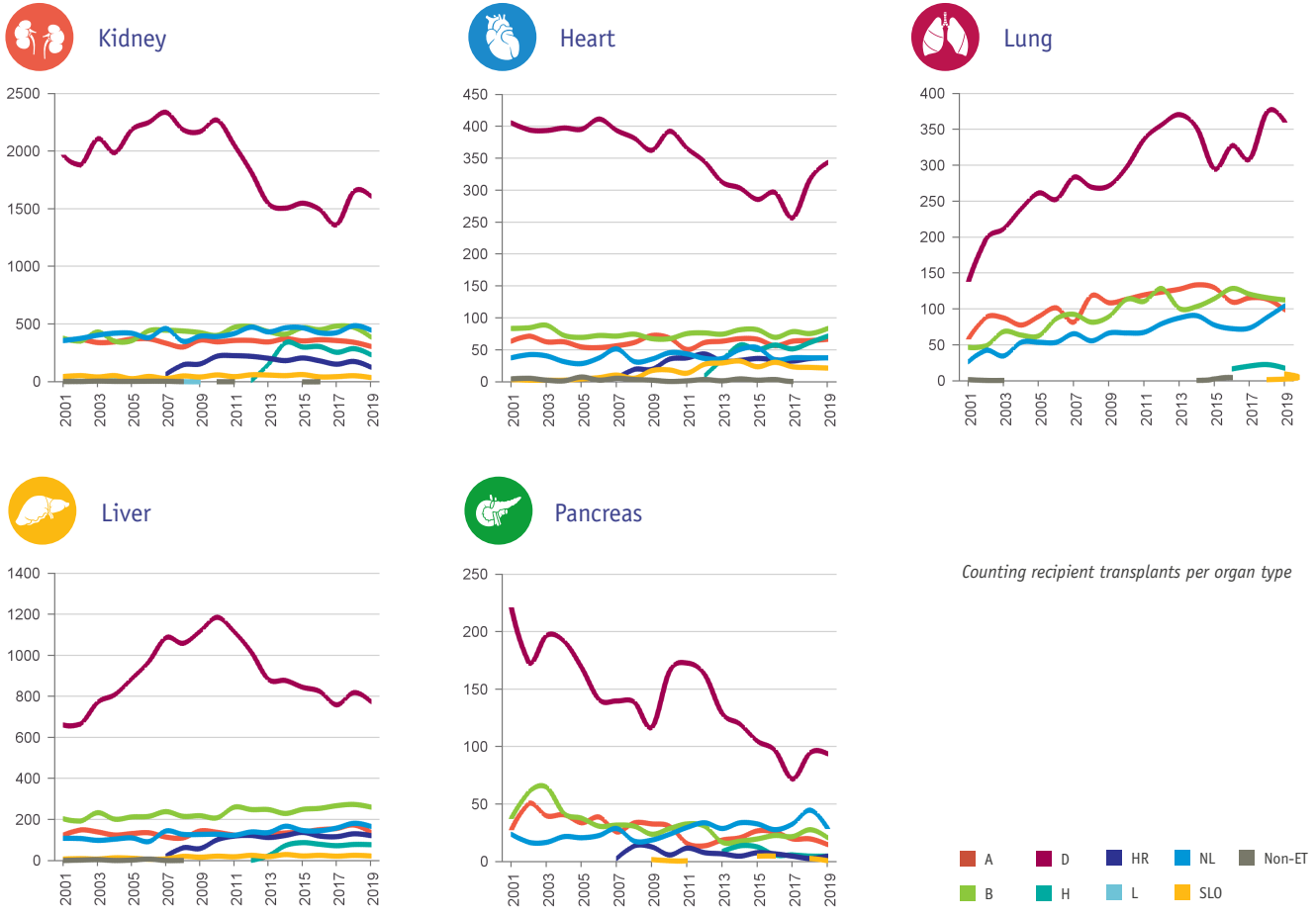
2.7.4 Transplants (deceased donor) in Eurotransplant, by organ type



2.7.5 Transplants (deceased donor, any organ) in Eurotransplant, by transplant country



2.7.6 Transplants (deceased donor) in Eurotransplant, by transplant country



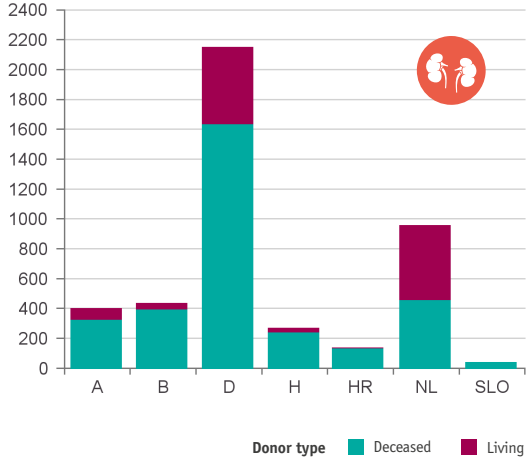
2.8 Transplants (living donor)

Living donor organs are not allocated by Eurotransplant, but are regulated by the transplant center and national transplant organizations. However, information on all living donor transplants in the Eurotransplant member states are recorded at Eurotransplant. Living donor transplant recipients are registered on the Eurotransplant waiting lists.

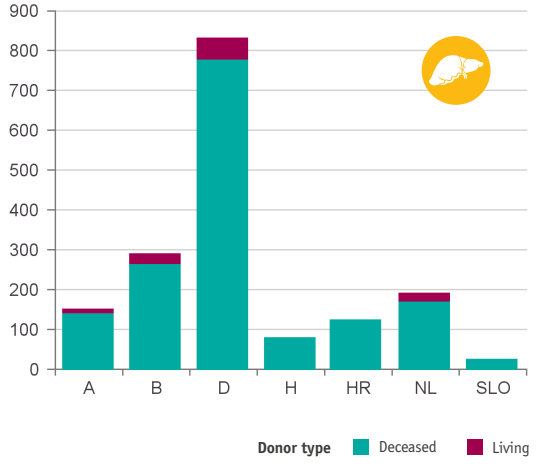
Most common living donor transplants are kidney and liver (partial/domino). Also possible is a lung (lobe) living donor transplant, of which there were 15 in the period 2000-2019.

Occasionally a transplant recipient's own heart or liver is suitable for and transplanted into another recipient. This is known as a living donor domino transplant. In the period 2000-2019 there were 6 domino heart transplants, and 157 domino liver transplants.

2.8.1 Kidney transplants in Eurotransplant in 2019, by country, by donor type



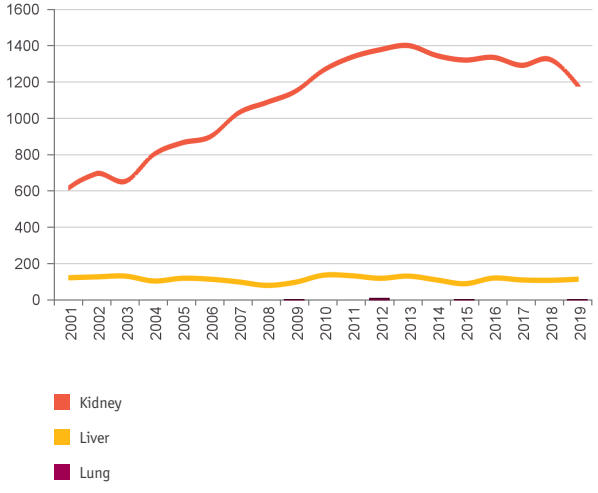
2.8.2 Liver transplants in Eurotransplant in 2019, by country, by donor type



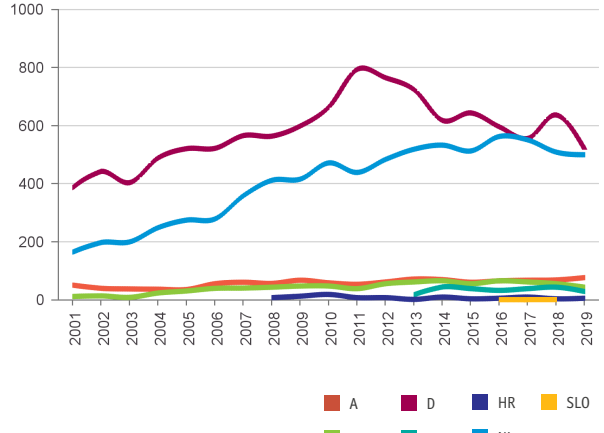
2.8.3 Transplants (living donor) in Eurotransplant in 2019, by country

Organ	A	B	D	H	HR	NL	SLO	Total
Kidney	78	45	520	30	7	501		**1181**
Lung	2							**2**
Liver	12	27	55			22		**116**
Total	**92**	**72**	**575**	**30**	**7**	**523**		**1299**

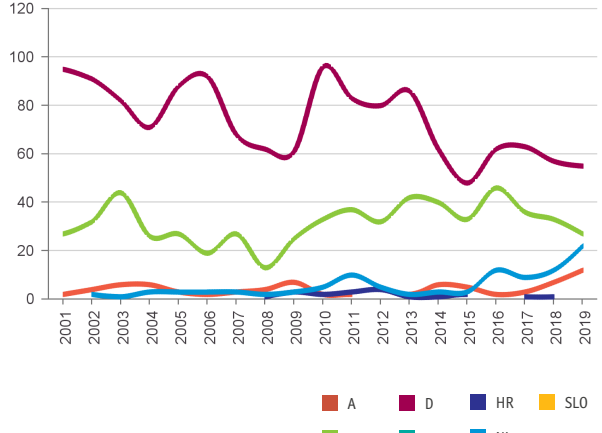
2.8.4 Transplants (living donor) in Eurotransplant, by organ



2.8.5 Kidney transplants (living donor) in Eurotransplant, by country



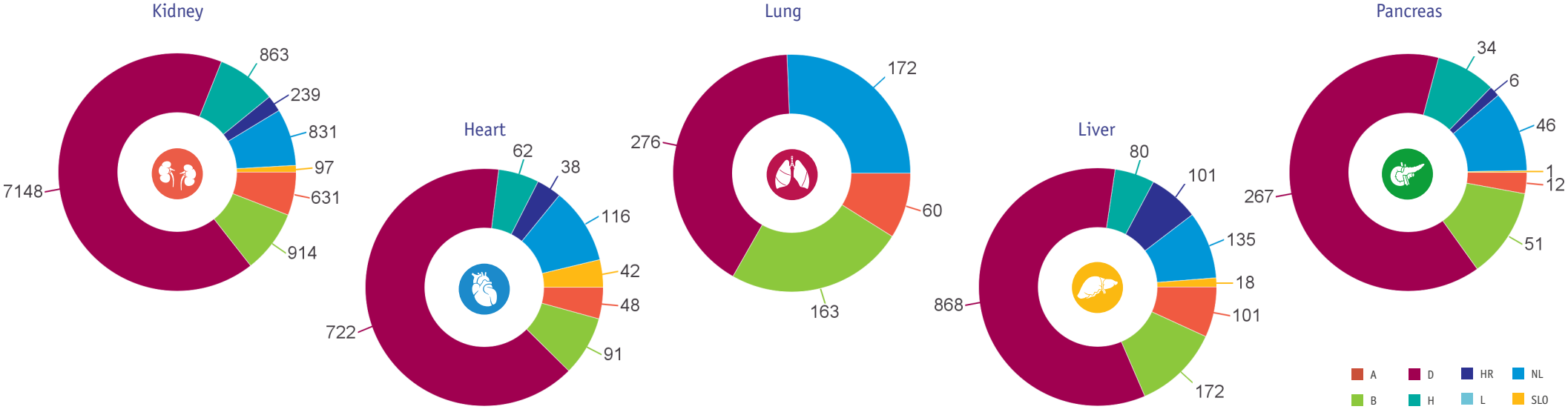
2.8.6 Liver transplants (living donor) in Eurotransplant, by country



2.9 Active waiting list

2.9.1 Active waiting lists in Eurotransplant at year-end 2019, by country*

** no active transplant program in Luxembourg in 2019*



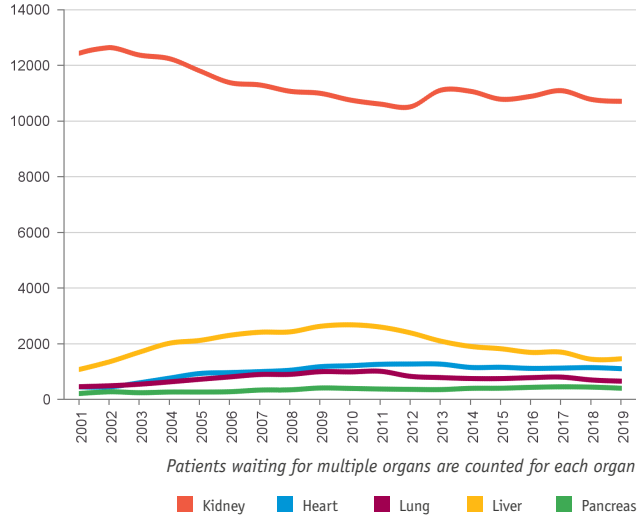
2.9.2 Active waiting lists in Eurotransplant at year-end 2019, by country

Waiting list type	A	B	D	H	HR	NL	SLO	Total
Kidney	631	914	7148	863	239	831	97	**10723**
Heart	48	91	722	62	38	116	42	**1119**
Lung	60	163	276			172		**671**
Liver	101	172	868	80	101	135	18	**1475**
Pancreas	12	51	267	34	6	46	1	**417**
Intestine		5	2					**7**
Total	**852**	**1396**	**9283**	**1039**	**384**	**1300**	**158**	**14412**
Patients	**837**	**1341**	**9005**	**1000**	**376**	**1271**	**156**	**13986**

Patients waiting for multiple organs are counted for each organ type

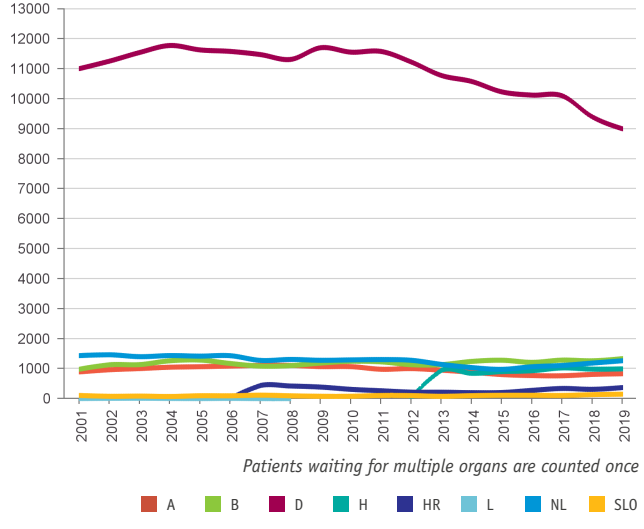
Lung patients from Croatia, Hungary and Slovenia are registered on the waiting list in Vienna, Austria. Hungary started performing lung transplants in 2016, and Slovenia in 2018, but the waiting list administration is still in Austria. Croatia does not have a lung transplant program, all patients are transplanted in Austria.

2.9.3 Active waiting lists in Eurotransplant, by organ



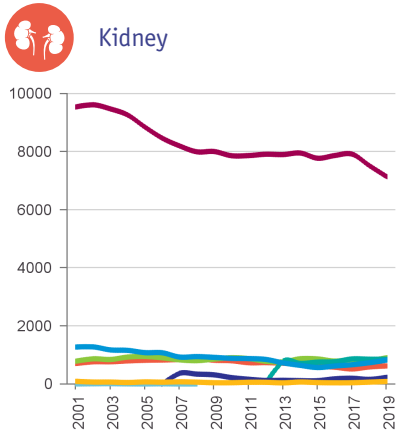
Patients waiting for multiple organs are counted for each organ

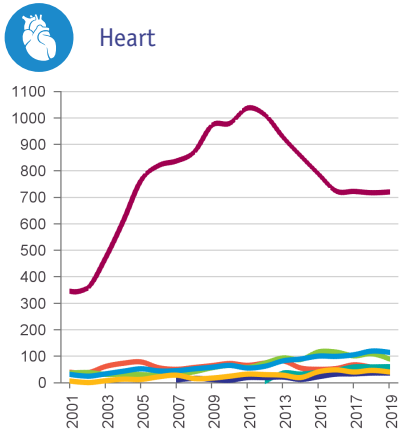
2.9.4 Active waiting list (any organ) in Eurotransplant, by country

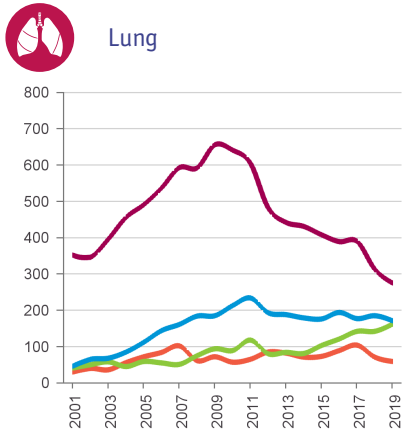


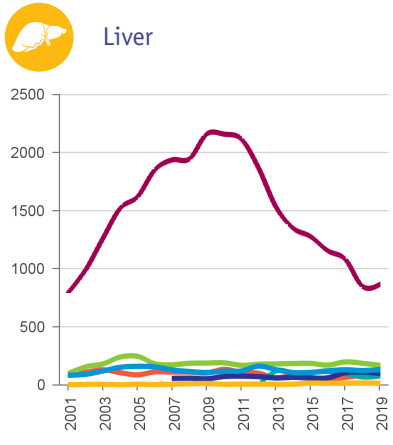
Patients waiting for multiple organs are counted once

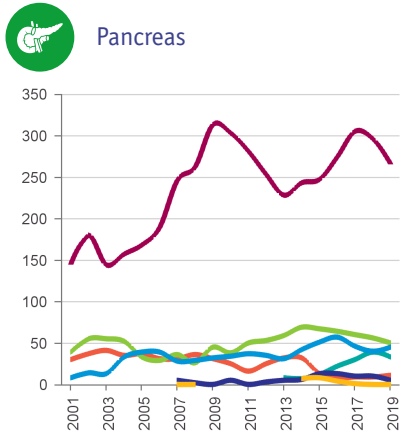
2.9.5 Active waiting lists in Eurotransplant, by country







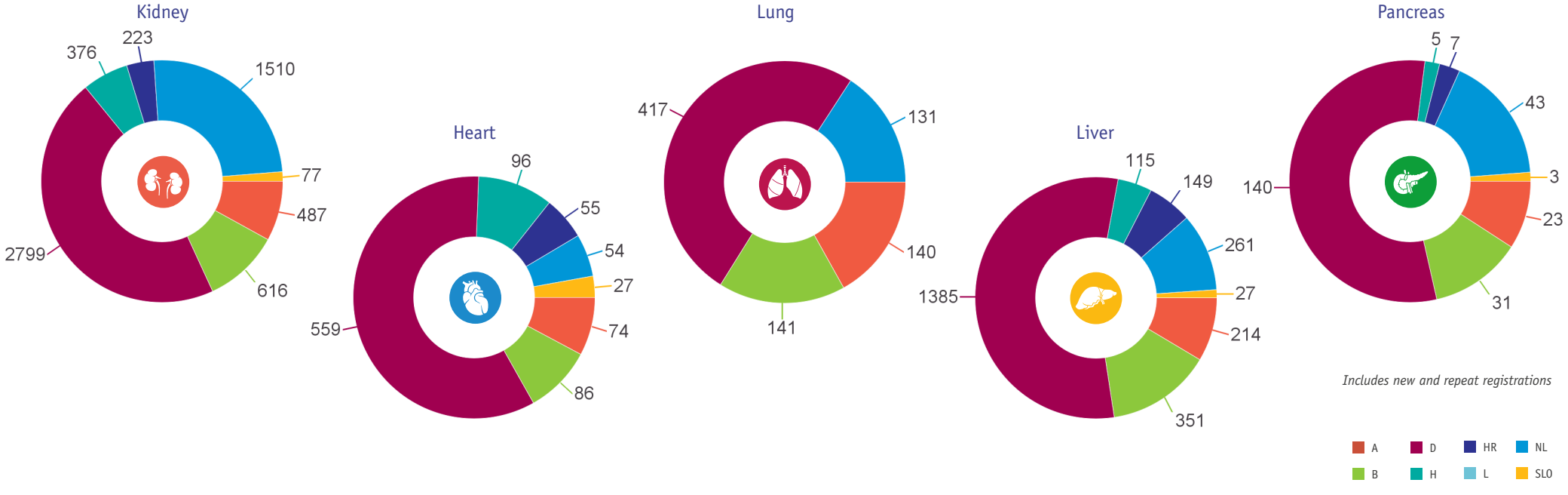




2.10 Waiting list registrations

2.10.1 Waiting list registrations in Eurotransplant in 2019, by country*

** no active transplant program in Luxembourg in 2019*



2.10.2 Waiting list registrations in Eurotransplant in 2019, by country

Waiting list	A	B	D	H	HR	NL	SLO	Total
Kidney	487	616	2799	376	223	1510	77	**6088**
Heart	74	86	559	96	55	54	27	**951**
Lung	140	141	417			131		**829**
Liver	214	351	1385	115	149	261	27	**2502**
Pancreas	23	31	140	5	7	43	3	**252**
Intestine	2	4	7					**13**
Total	**940**	**1229**	**5307**	**592**	**434**	**1999**	**134**	**10635**
Patients	**890**	**1149**	**5033**	**575**	**417**	**1952**	**127**	**10143**

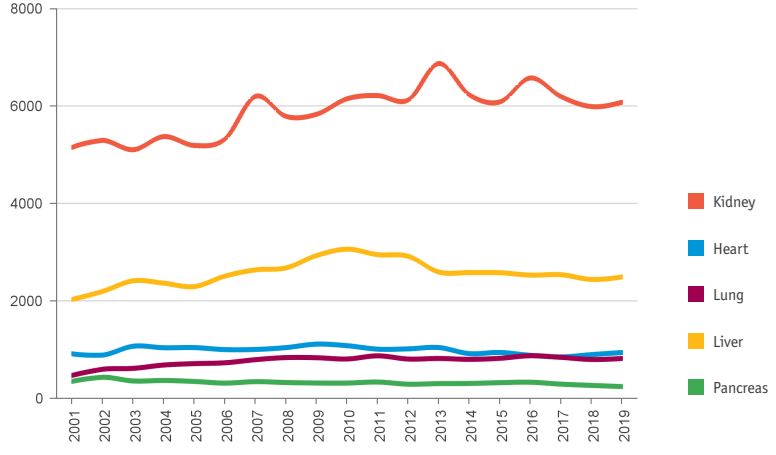
Patient registrations for multiple organs are counted for each organ type, includes new and repeat registrations

2.10.3 Repeat waiting list registrations in Eurotransplant in 2019, by country

Repeat registrations	A	B	D	H	HR	NL	SLO	Total
Kidney	85	64	350	22	23	230	4	**778**
Heart	1	2	6	3			3	**15**
Lung	12	2	12			4		**30**
Liver	23	38	139	12	19	34	2	**267**
Pancreas		7	11			9		**27**
Intestine								
Total	**121**	**113**	**518**	**37**	**42**	**277**	**9**	**1117**
Patients	**118**	**111**	**510**	**36**	**42**	**275**	**9**	**1101**

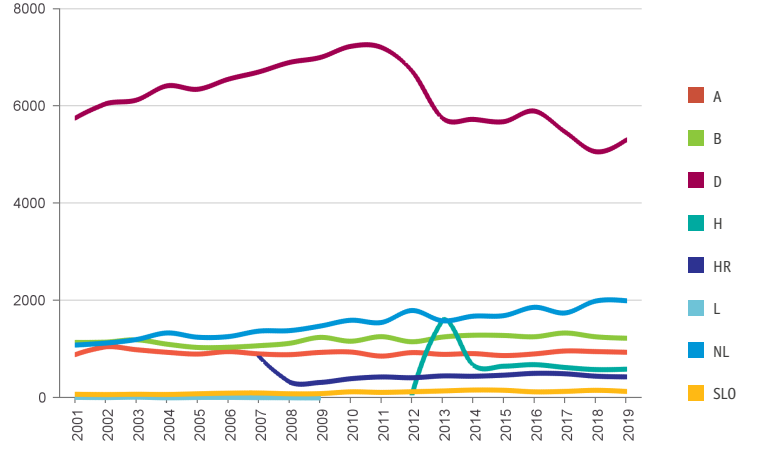
Patient registrations for multiple organs are counted for each organ type, includes only repeat registrations (for re-transplant)

2.10.4 Waiting list registrations in Eurotransplant, by organ



Patients registered for multiple organs are counted for each organ, includes new and repeat registrations

2.10.5 Waiting list (any organ) registrations in Eurotransplant, by country

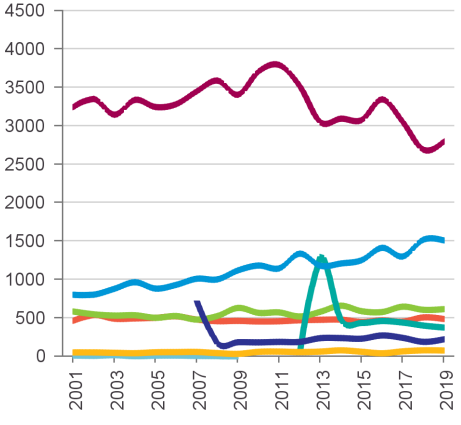


Patients registered for multiple organs are counted for each organ, includes new and repeat registrations

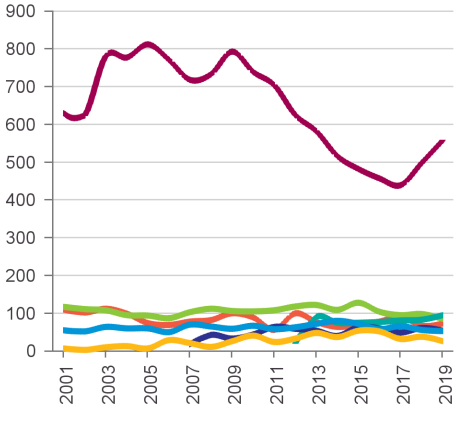
2.10.6 Waiting list registrations in Eurotransplant, by country*

* *no active transplant program in Luxembourg in 2019*

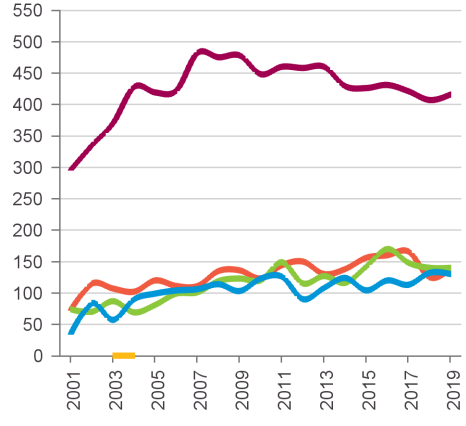
Kidney



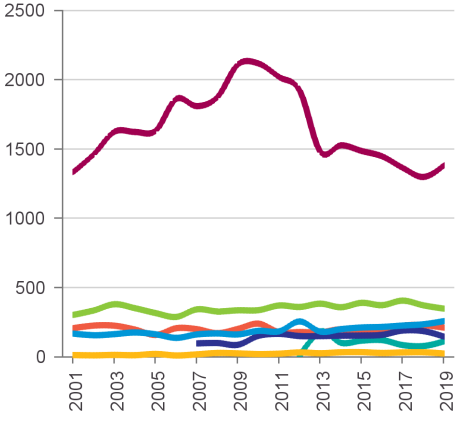
Heart



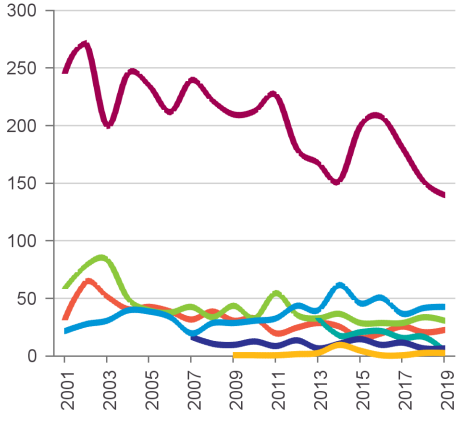
Lung



Liver



Pancreas

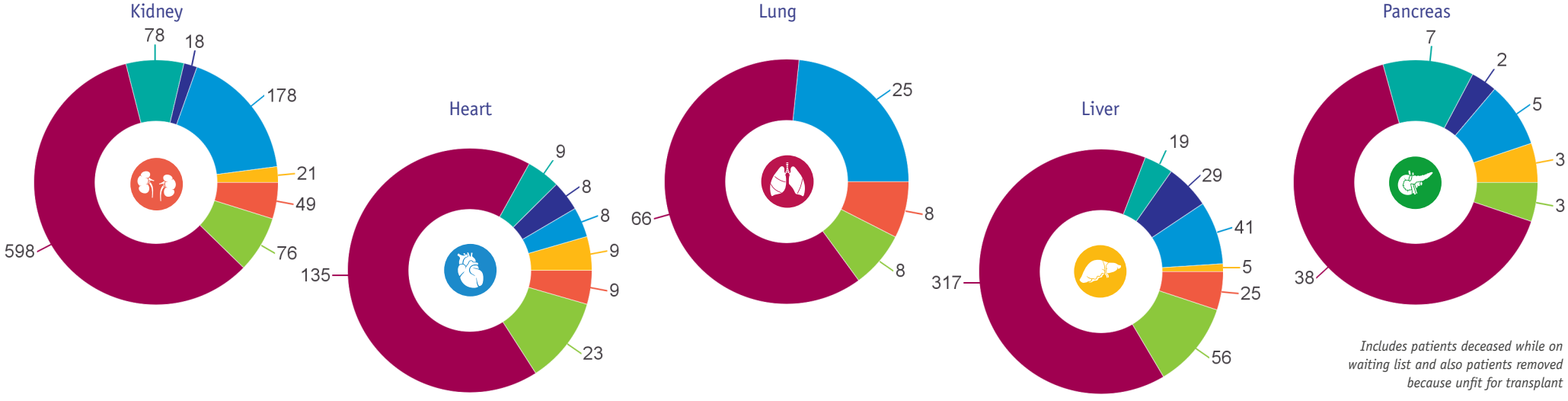


Includes new and repeat registrations

2.11 Waiting list removals (deceased or unfit for transplant)

2.11.1 Waiting list removals (deceased or unfit) in Eurotransplant in 2019, by country*

* *no active transplant program in Luxembourg in 2019*



Includes patients deceased while on waiting list and also patients removed because unfit for transplant

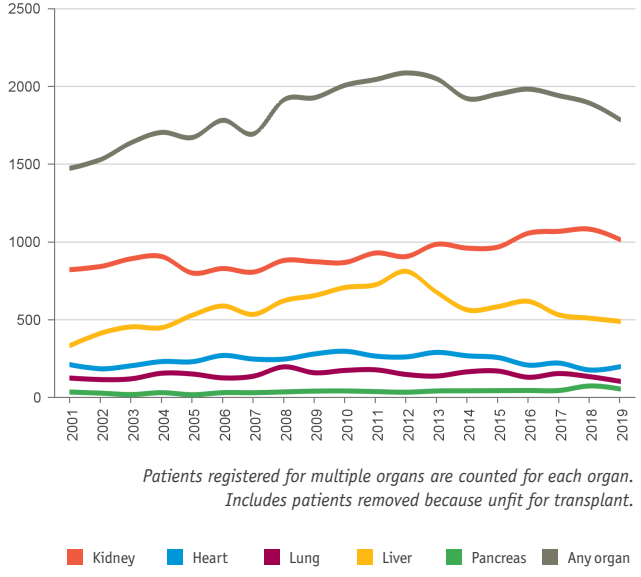
2.11.2 Waiting list removals (deceased or unfit) in Eurotransplant in 2019, by country

A D HR NL
B H L SLO

Waiting list type	A	B	D	H	HR	NL	SLO	Total
Kidney	49	76	598	78	18	178	21	**1018**
Heart	9	23	135	9	8	8	9	**201**
Lung	8	8	66			25		**107**
Liver	25	56	317	19	29	41	5	**492**
Pancreas		3	38	7	2	5	3	**58**
Intestine		1	5					**6**
Total	91	167	1159	113	57	257	38	**1882**
Patients	89	158	1095	106	53	253	35	**1789**

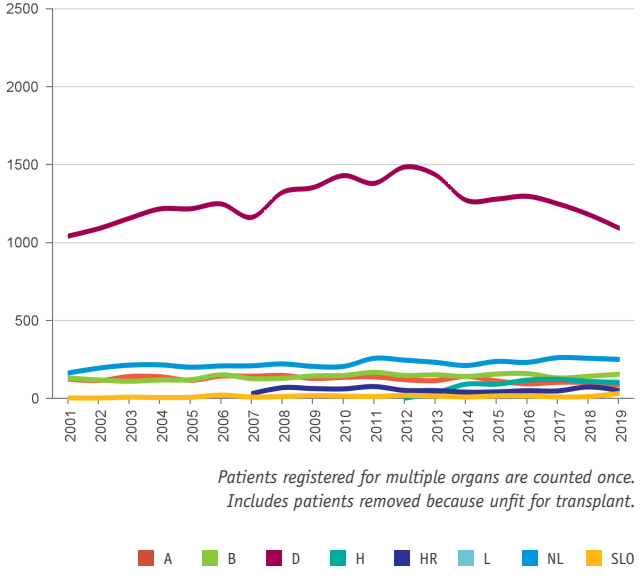
Patient removals for multiple organs are counted for each organ type. Reported by year of removal from waiting list. Includes patients removed because unfit for transplant.

2.11.3 Waiting list removals (deceased or unfit) in Eurotransplant, by organ



Patients registered for multiple organs are counted for each organ.
Includes patients removed because unfit for transplant.

2.11.4 Waiting list (any organ) removals (deceased or unfit) in Eurotransplant, by country



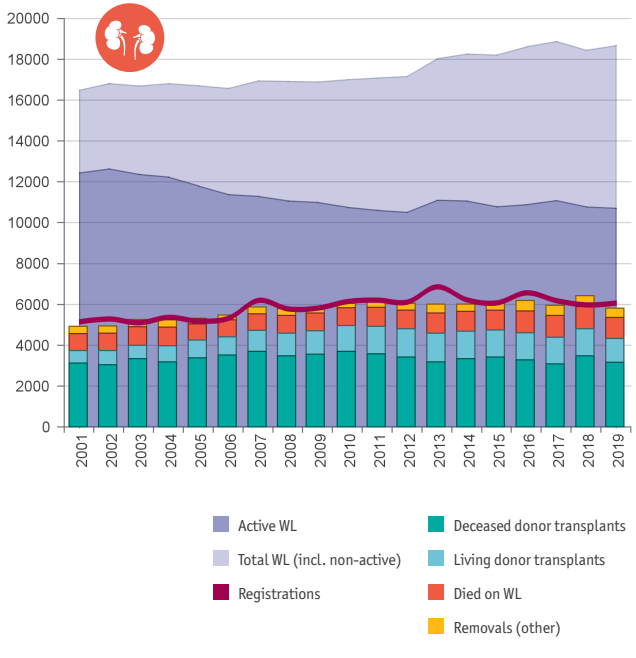
Patients registered for multiple organs are counted once.
Includes patients removed because unfit for transplant.

2.12 Waiting list dynamics

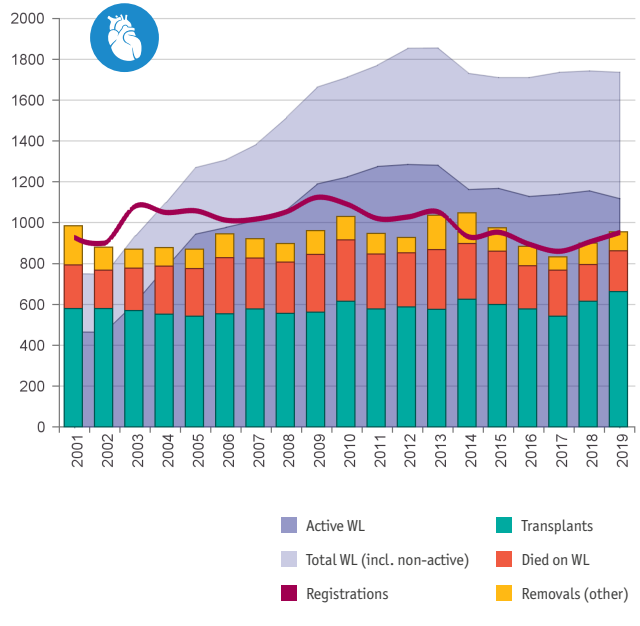
The following charts show the historical waiting list dynamics in detail:

- Registrations on the waiting list per year
- Removals (Transplanted / Died on the waiting list (including removed-unfit) / Other removals) per year (by year of actual removal from the waiting list)
- Active and Non-active waiting list (continuous)

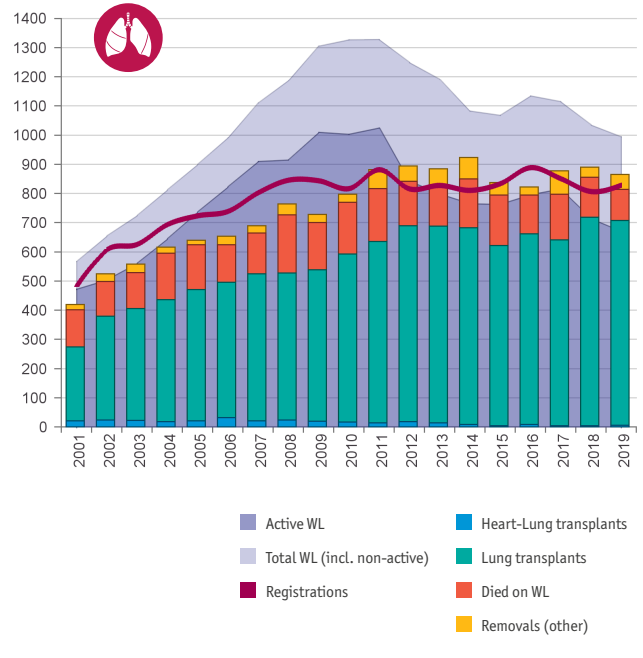
2.12.1 Kidney waiting list dynamics in Eurotransplant



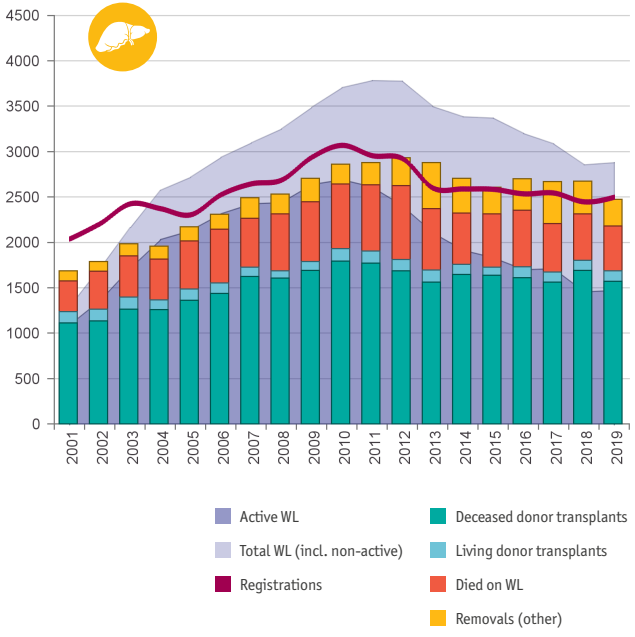
2.12.2 Heart waiting list dynamics in Eurotransplant



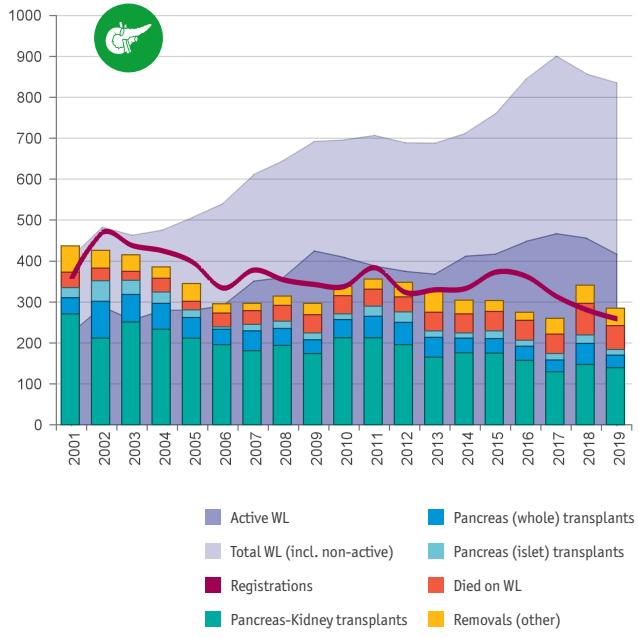
2.12.3 Lung waiting list dynamics in Eurotransplant



2.12.4 Liver waiting list dynamics in Eurotransplant



2.12.5 Pancreas waiting list dynamics in Eurotransplant

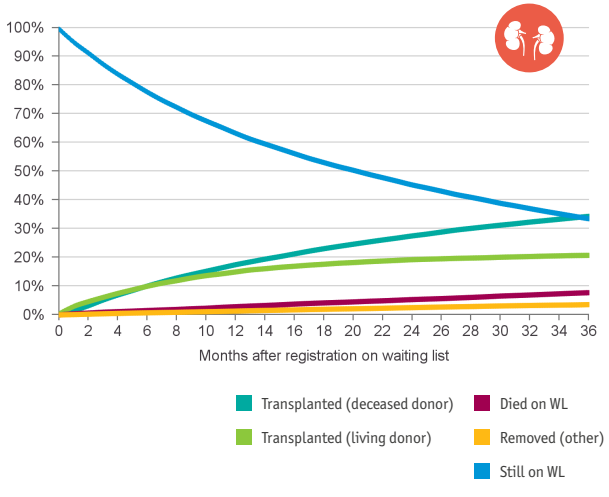


2.13 Waiting list outcome

The following charts show the probability of each waiting list outcome event, during the 3 years after registration on the Eurotransplant waiting list (based on registrations in the period 2012-2016).

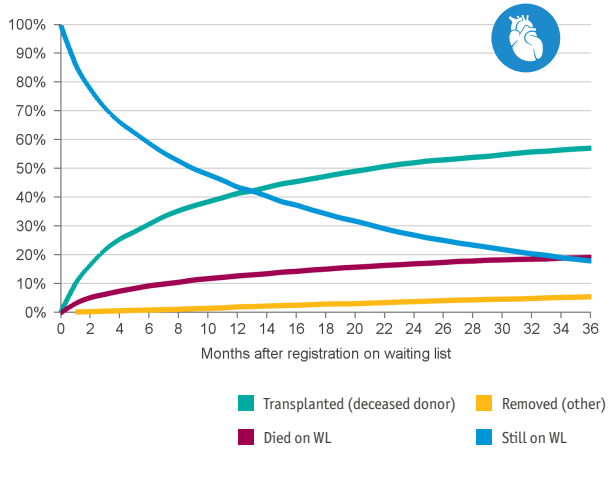
- Repeat registrations (after transplant) are excluded.
- New registrations resulting in living donor transplants are included.
- Active and Non-active status on the waiting list is included.
- Reported by month of actual removal event.
- Died on the WL includes removals because unfit for transplant.

2.13.1 Kidney waiting list registrations in Eurotransplant 2012-2016 - 3 year outcome



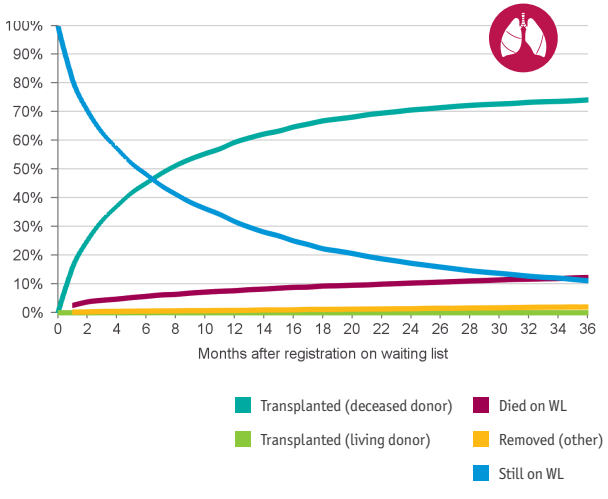
Outcome	1 year	2 years	3 years
Transplanted (deceased donor)	18%	28%	34%
Transplanted (living donor)	15%	19%	21%
Died on the WL	3%	5%	8%
Removed (other)	1%	3%	4%
Still on WL	63%	45%	34%

2.13.2 Heart waiting list registrations in Eurotransplant 2012-2016 - 3 year outcome



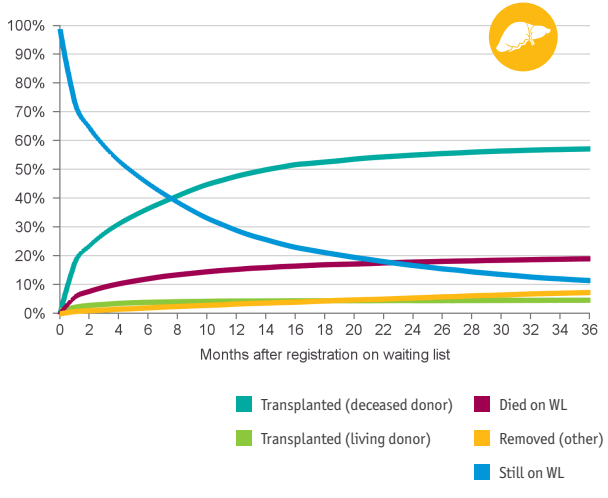
Outcome	1 year	2 years	3 years
Transplanted (deceased donor)	41%	52%	57%
Died on the WL	13%	17%	19%
Removed (other)	2%	4%	6%
Still on WL	44%	27%	18%

2.13.3 Lung waiting list registrations in Eurotransplant 2012-2016 - 3 year outcome



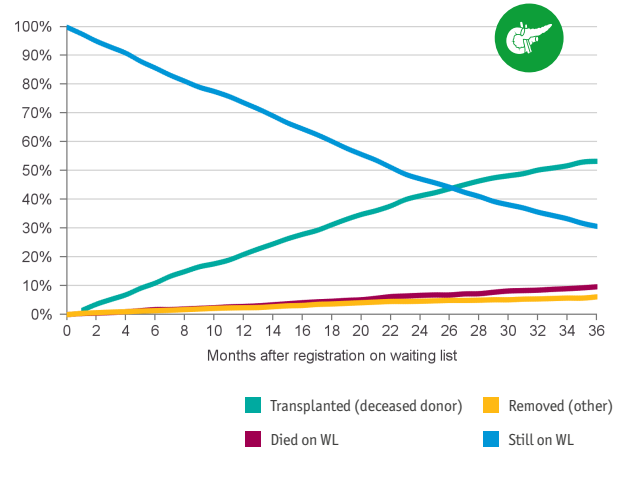
Outcome	1 year	2 years	3 years
Transplanted (deceased donor)	59%	71%	74%
Transplanted (living donor)	0%	0%	0%
Died on the WL	8%	10%	12%
Removed (other)	1%	1%	2%
Still on WL	32%	17%	11%

2.13.4 Liver waiting list registrations in Eurotransplant 2012-2016 - 3 year outcome



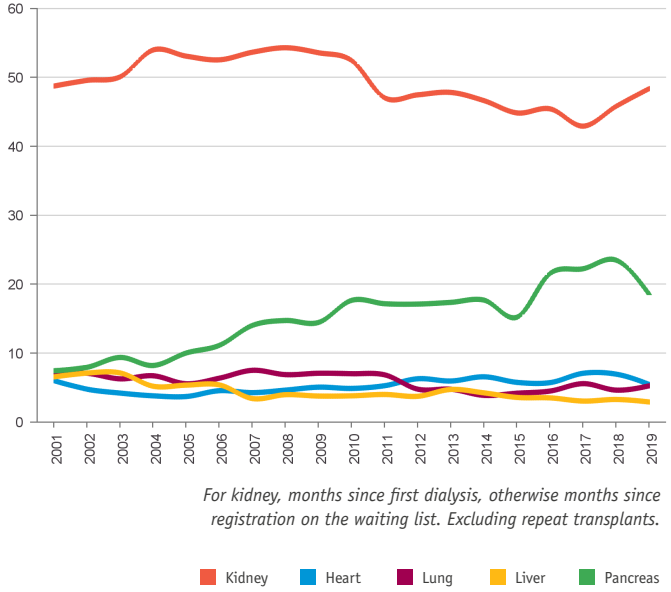
Outcome	1 year	2 years	3 years
Transplanted (deceased donor)	48%	55%	57%
Transplanted (living donor)	4%	5%	5%
Died on the WL	15%	18%	19%
Removed (other)	3%	5%	7%
Still on WL	29%	17%	12%

2.13.5 Pancreas waiting list registrations in Eurotransplant 2012-2016 - 3 year outcome



Outcome	1 year	2 years	3 years
Transplanted (deceased donor)	21%	41%	53%
Died on the WL	3%	7%	10%
Removed (other)	2%	5%	6%
Still on WL	74%	47%	31%

2.13.6 Median time (in months) to transplant (deceased donor) in Eurotransplant by year of transplant, by organ



For kidney, months since first dialysis, otherwise months since registration on the waiting list. Excluding repeat transplants.

3 Report of the Board and the central office

"I feel proud to be a part of this process of international organ exchange. My colleagues and I all feel very dedicated to the donor and to every person in need of an organ."

Report of the Board and the central office

3.1 Report of the Board

The Board of Stichting Eurotransplant International Foundation consists of a President, a Vice-President and;

11 members	A: members representing organ/ tissue typing section
7 members	B: members representing national transplant societies
1 member	C: the head of the Eurotransplant Reference Laboratory
2 members	D: one member being a financial expert in the area related to health care (treasurer) and one member being an ethicist familiar with the field of organ transplantation (ethicist)

The Board of Stichting Eurotransplant International Foundation met on January 24, May 27 and October 7, 2019.

In the liver section, Prof. Dr. Jacques Pirenne was re-elected by the Assembly for another term. In the pancreas section, Prof. Dr. Christian Margreiter was re-elected by the Assembly for another term.

Furthermore, Prof. Dr. Zoltan Mathe stepped down as Board member B and was replaced by the Hungarian transplant society by Laszlo Kobori. Dr. Jadranka Buturovic-Ponikvar replaced Drs. Mike Bos as member D - ethicist.

Sadly, vice-president
Prof. Dr. Xavier Rogiers
passed away on November 20, 2019.

The composition of the Board of Eurotransplant International Foundation as per December 31, 2019:

Prof. Dr. B. Meiser, Munich, Germany	President
Dr. E. Homan, Voorhout, the Netherlands	Treasurer
Prof. Dr. G. Berlakovich, Vienna, Austria	on behalf of the kidney section (A)
Prof. Dr. D. Kuypers, Leuven, Belgium	on behalf of the kidney section (A)
Prof. Dr. U. Heemann, Munich, Germany	on behalf of the kidney section (A)
Prof. Dr. M. Guba, Munich, Germany	on behalf of the liver section (A)
Prof. Dr. J. Pirenne, Leuven, Belgium	on behalf of the liver section (A)
Prof. Dr. C. Margreiter, Innsbruck, Austria	on behalf of the pancreas section (A)
Prof. Dr. G. Laufer, Vienna, Austria	on behalf of the thoracic section (A)
Prof. Dr. D. van Raemdonck, Leuven, Belgium	on behalf of the thoracic section (A)
PD Dr. F. Wagner, Hamburg, Germany	on behalf of the thoracic section (A)
Prof. Dr. C. Süsal, Heidelberg, Germany	on behalf of the tissue typing section (A)
Prof. Dr. T. Soliman, Vienna, Austria	on behalf of the organ procurement section (A)
Prof. Dr. R. Függer, Linz, Austria	on behalf of the Austrian transplant society (B)
Dr. G. Roeyen, Antwerp, Belgium	on behalf of the Belgian transplant society (B)
Dr. B. Kocman, Zagreb, Croatia	on behalf of the Croatian transplant society (B)
Prof. Dr. J. Pratschke, Berlin, Germany	on behalf of the German transplant society (B)
Prof. Dr. L. Kobori, Budapest, Hungary	on behalf of the Hungarian transplant society (B)
Prof. Dr. M. Reinders, Leiden, the Netherlands	on behalf of the Dutch transplant society (B)
Dr. D. Avsec, Ljubljana, Slovenia	on behalf of the Slovenian transplant society (B)
Prof. Dr. F. Claas, Leiden, the Netherlands	on behalf of the Eurotransplant Reference Laboratory (C)
Dr. J. Buturovic-Ponikvar, Ljubljana, Slovenia	Ethicist (D)

Below a summary of the approved, original minutes of the board meetings.

3.1.1 Finance

The budget for 2019 was approved by the financiers in February 2019 instead of November 2018 as the financial authorities requested additional information and detailed plans for the IT organisation and the renewal of ENIS. Additional budget was requested for i.e. continuing with the renewal of ENIS (ENISnext), organizational strengthening and relocation of the Eurotransplant office in Leiden.

The auditors approved the annual accounts.

The Management Team met with the financiers in June. Most important topics to discuss were the German Registry, the implementation of recommendations and the great fluctuation in the number of registrations, especially in Germany.

A preliminary estimation of the financial result for 2019 turned out positive.

3.1.2 Cooperation

Romania
The Board discussed a possible cooperation with Romania. For this purpose, the Minister of Health from Romania joined the Board in January and informed them about the improvement of the Romanian donation and transplantation system and the respective management. Romania needs support with lung transplantations and a teaching and training program is therefore needed. For that purpose, Eurotransplant implemented a so-called Teaching and Training Agreement (TTA). Romania was invited to send an application for that.

Two Teaching and Training Agreement (TTA) requests from Bulgaria were received but neither requests resulted in a contract with a Eurotransplant center.
Eurotransplant also received a request from Greece for a Teaching and Training Agreement. AKH (Vienna) expressed their willingness to cooperate with Greece. However, this TTA was never finalized as during the application process Vienna trained physicians from Greece in Vienna without exchange of organs or patients, in which case a TTA is not necessary.

An OEO (Organ Exchange Organization) Agreement has been set-up with Cyprus.

An incident with a Greek donor was discussed by the Board. Even though the allocation procedure was according to all SOP's of Eurotransplant the Board had some concerns about the ethical consequences of the incident. As there were no violations of Eurotransplant rules it was decided that Eurotransplant would send a neutral and informal letter to the centers involved.

3.1.3 Governance

The Board decided that Branger will cover the portfolio of IT on an interim basis.
The medical director announced in March that she would leave the organization as of June 2019. The Board decided that a call for tender will be published at the end of August/beginning of September 2019.

The Board discussed the performance of the Management Team. The Board was very pleased to see that the organization is running smoothly and was impressed by the work of Vogelaar as ad interim medical director. The Management Team was also complimented on their work for the CORE Advisory Committee.

During 2019, many steps were taken to finalize the re-structuring of the governance structure of Eurotransplant to a new model.

During their meetings, the Board approved the new articles of association, the bylaws for the Council of Medicine and Science, the Council of Administration, the Assembly, the Supervisory Board and Board of Management. They will be brought to the Eurotransplant Council for review.
Also, the profiles for members of the Supervisory Board and Board of Management were approved.

The Board decided to prolong the term of the current Vice-President until January 1, 2020 as the positions of President, Vice-President and Treasurer would disappear in the new structure. For all other members, it was decided that the Board members will transition to the Council of Medicine for the remain of their term. All members accepted their new role as member of the Council of Medicine and Science.

The Board elected the first two members of the Supervisory Board with experience in transplant medicine. After a first anonymous voting round Meiser and Van Raemdonck had an absolute majority of the votes cast and were thereby elected. Their nomination would need to be approved by a 2/3 majority of votes cast in the Council of Administration.

3.1.4 Advisory Committees

The term of the chairmen of the ETKAC, ELIAC, ERAC and EThAC expired. The Board elected the following chairmen:

- For the ETKAC the Board voted and elected Heemann as chairman of the ETKAC for another term of three years.
- For the ELIAC the Board voted and elected Guba as chairman of the ELIAC for another term of three years.
- For the EThAC the Board voted and elected Laufer as chairman of the EThAC for another term of three years.
- For the ERAC the Board voted and elected Berlakovich as chairman of the ERAC for a term of three years. One member abstains.

Status of recommendations and policies
The Board was informed that for the implementation of the approved recommendations a careful planning considering the time and personnel needed for the renewal of ENIS and the implementation of recommendation had to be discussed.

For heart, the new HU criteria box A (R-THAC01.18) including accumulation of HU waiting time (R-ThAC02.18) would be implemented after the formal approval of some countries. For liver, recommendations R-LAC09.18 concerning SE HAT, R-LAC10.18 concerning urea cycle disorder and R-LAC01.17 concerning primary hyperoxaluria have been implemented. With this, Eurotransplant complies with the German Richtlinien. For pancreas, there are a lot of recommendations open. Within Eurotransplant there is no software developer with the knowledge who can build or adapt the Pancreas match programs. An external company is helping Eurotransplant and all recommendations concerning immunized patients, listing criteria, waiting time are being built and implementation was planned in the first quarter 2020. For tissue typing, implementation of virtual cross matching has been started. Together with the ETRL milestones are established. The first milestone was planned for November 2019. From then on, the vPRA is the only way to determine whether a patient is immunized/sensitized. In first quarter 2022 virtual cross matching will hopefully be implemented as a standard method.

The kidney balance as a result of the new kidney allocation system was discussed. Slovenia and Belgium noticed a decrease of kidney offers since the implementation of the new system.

The adapted system has 4 age groups, where the old system did not make any age differentiation. Each exported organ is counted as a balance organ.

A return offer will be done with an organ with a donor in the same age group. The new system was designed to have a more balanced exchange between the member states. There are two issues which could have an effect on this balance;

1. In the older age groups the return offers are not accepted in countries with high donor rates.

2. In the previous system the balance was calculated over the last 365 days. With the new system everything was reset to 0. The balance points that were accumulated in the old system were deleted. However, in the adapted system, the balance is cumulative. Despite the imbalance at the beginning, over time balance points will be accumulated by the exporting countries and the balance will stabilize the import and export.

In the new system the only change is that organs from donors in the age category 16-48 yrs. are exported to Germany and Austria and exported from Croatia and Belgium rather than the other way around compared to the old system. For the donors in the age category 49-64 yrs. Germany is importing, and Croatia is exporting. It is not the allocation that changed, it is the distribution.
The reason for the new system was an equal balance on organ quality. Due to the compromise made and a zero balance for all organs there is now an imbalance for some countries and this needs to be discussed. A factor based on the donor rate needs to be implemented.
The ETKAC was asked to discuss this issue.

3.1.5 Relocation

The financiers approved the housing budget in February. On December 23, the office moved to the new location on the Haagse Schouwweg 6 in Leiden.

3.1.6 IT

In February, Eurotransplant informed the centers about new consent documentation in ENIS. The GDPR requirement is that consent information for data exchange of every patient on the waiting list has to be filled in.

The project to renew the oracle forms started on May 1, 2019. The aim of this project is to upgrade the current ENIS application by re-building and replacing all external ENIS application screens in a new, web-based solution called ENISnext. The content of the application screens will hardly change but ENISnext will be available in modern browsers and have an improved, user-friendly appearance. It was scheduled to go live in the second half of November 2020 in the center of Hannoversch Münden. This would be the first implementation of the application screens in a kidney-only center. If this implementation succeeds, other kidney-only centers and thereafter the organ organs will follow. It is expected that all forms will be replaced mid-2020. Should Microsoft terminate the support of the old browser in the meantime, a fallback scenario has been tested and ready for centers to use.

3.1.7 Winter Meeting 2020

The Board discussed and decided to skip the Winter Meeting in 2020. The Board decided to organize the first meeting of the Council of Medicine and Science and the Council of Administration, as well as the first combined Council meeting in January 2020 in Leiden.

3.1.8 Registry

The machine perfusion items have been implemented in the registry application. Updated data agreements with CTS and CERTAIN have been signed. The centers are further working on the patient consents for data use and exchange. Agreements with national transplant registries are mostly in place; the German registry is under development.

3.2 Advisory Committees

Eurotransplant positions itself as an independent scientifically oriented organization. Various Advisory Committees, of which the chairs hold a position in the Board of Eurotransplant, meet several times a year and discuss the impact of new scientific developments in the field of organ allocation, organ procurement as well as transplant ethics. Their conclusions are proposed as recommendations or policies to the Board of Eurotransplant.

In 2019, the various advisory committees met 22 times and submitted 14 recommendations and 23 policies.

A complete list of all recommendations and policies approved in 2019 is published under section 3.3. of this chapter. Through this practice, transplant regulations throughout Eurotransplant have a great degree of uniformity.

The composition of the various advisory committee and working groups as per December 31, 2019 was as follows:

Kidney Advisory Committee (ETKAC)

Name	As of	Remarks
Prof. Dr. U.W.J. Heemann, Munich	05.2009	chair, representative Board
Prof. Dr. F. Bemelman, Amsterdam	08.2018	vice-chair / representative the Netherlands (1/2)
Prof. Dr. A. Rosenkranz, Graz	01.2008	representative Austria (1/2)
Prof. Dr. R. Oberbauer, Vienna	01.2016	representative Austria (2/2)
Prof. Dr. G. Mayer, Innsbruck	01.2016	substitute representative Austria (1/1)
Prof. Dr. B. Sprangers, Leuven	09.2018	representative Belgium (1/2)
Dr. L. Weekers, Liège	10.2011	representative Belgium (2/2)
Prof. Dr. M. Mourad, Brussels	01.2018	substitute representative Belgium (1/1)
Prof. Dr. N. Bašić Jukić, Zagreb	04.2018	representative Croatia (1/1)
Prof. Dr. M. Knotek, Zagreb	04.2018	substitute representative Croatia (1/1)
Prof. Dr. K. Budde, Berlin	01.2016	representative Germany (1/4)
Prof. Dr. B. Suwelack, Münster	01.2018	representative Germany (2/4)
Prof. Dr. I. Hauser, Frankfurt am Main	01.2012	representative Germany (3/4)
Prof. Dr. M. Koch, Mainz	01.2018	representative Germany (4/4)
Prof. Dr. C. Hugo, Dresden	01.2016	substitute representative Germany (1/1)
Dr. L. Wagner, Budapest	06.2019	representative Hungary (1/1)
Dr. E. Szederkenyi, Szeged	06.2019	substitute representative Hungary (1/1)
Dr. P. Duhoux, Luxembourg	09.1994	representative Luxembourg (1/1)
Prof. Dr. C. Braun, Luxembourg	11.2018	substitute representative Luxembourg (1/1)
Dr. M. Christiaans, Maastricht	01.2018	representative the Netherlands (2/2)
Dr. M. Arnol, Ljubljana	01.2006	representative Slovenia (1/1)
Prof. Dr. G. Mlinsek, Ljubljana	01.2018	substitute representative Slovenia (1/1)
Prof. Dr. F.H.J. Claas, Leiden	09.1994	representative tissue typing Assembly (1/1)
I. Tieken MD, Eurotransplant	01.2014	secretary
B. Goudsmit MD, Eurotransplant	01.2019	substitute-secretary
Ms. L. Sanders, Eurotransplant	01.2010	assistant-secretary

Liver and Intestine Advisory Committee (ELIAC)

Name	As of	Remarks
Prof. Dr. M. Guba, Munich	10.2016	chair, representative of the Board
Prof. Dr. G. Berlakovich, Vienna	07.2014	representative Austria (1/1)
Prof. Dr. H. Zoller, Innsbruck	04.2013	substitute representative Austria (1/1)
Prof. Dr. P. Michielsen, Antwerp	01.2008	representative Belgium (1/1)
Prof. Dr. H.R. van Vlierberghe, Ghent	01.2012	substitute representative Belgium (1/1)
Dr. D. Mikulic, Zagreb	01.2018	representative Croatia (1/1)
Prof. Dr. S. Jadrijevic, Zagreb	01.2011	substitute representative Croatia (1/1)
Prof. Dr. C. Strassburg, Bonn	01.2010	representative Germany (1/2)
Prof. Dr. F. Braun, Kiel	01.2018	representative Germany (2/2)
Prof. Dr. M. Melter, Regensburg	01.2018	substitute representative Germany (1/2)
Prof. Dr. A. Pascher, Münster	01.2016	substitute representative Germany (2/2)
Dr. L. Piros, Budapest	06.2019	representative Hungary (1/1)
Prof. Dr. L. Kobori, Budapest	01.2018	substitute representative Hungary (1/1)
Dr. A.P. van den Berg, Groningen	09.2018	representative the Netherlands (1/1)
Dr. W.G. Polak, Rotterdam	09.2018	substitute representative the Netherlands (1/1)
Prof. Dr. B. Trotovsek, Ljubljana	01.2016	representative Slovenia (1/1)
Dr. K. Novak, Ljubljana	01.2018	substitute representative Slovenia (1/1)
M. de Rosner-van Rosmalen MD, Eurotransplant	12.2013	secretary
J. de Boer MD, Eurotransplant	12.2013	substitute-secretary
Ms. L. Sanders, Eurotransplant	10.2017	assistant-secretary

Pancreas Advisory Committee (EPAC)

Name	As of	Remarks
Prof. Dr. C. Margreiter, Innsbruck	10.2016	chair, representative of the Board
Prof. Dr. P. Stiegler, Graz	06.2017	representative Austria (1/1)
Dr. G. Györi, Vienna	01.2018	substitute representative Austria (1/1)
Prof. Dr. P. Gillard, Leuven	03.2010	representative Belgium (1/1)
Prof. Dr. D. Jacobs Tulleneers-Thevissen, Brussels	01.2016	substitute representative Belgium (1/1)
Dr. M. Poljak, Zagreb	01.2018	representative Croatia (1/1)
Vacancy		substitute representative Croatia (1/1)
PD Dr. P. Schenker. Bochum	11.2014	representative Germany (1/3)
PD Dr. A. Kahl, Berlin	01.2006	representative Germany (2/3)
Prof. Dr. med. B. Ludwig, Dresden	01.2016	representative Germany (3/3)
PD Dr. H. Arbogast, Munich	01.2020	substitute representative Germany (3/3)
Dr. K. Kalmar-Nagy, Pecs	07.2013	representative Hungary (1/1)
Dr. L. Piros, Budapest	01.2016	substitute representative Hungary (1/1)
Dr. R. A. Pol, Groningen	02.2016	representative the Netherlands (1/1)
Dr. V. Huurman, Leiden	01.2018	substitute representative the Netherlands (1/1)
Dr. A. Tomazič, Ljubljana	01.2007	representative Slovenia (1/1)
Vacancy		substitute representative Slovenia (1/1)
Prof. Dr. F.H.J. Claas, Leiden	08.1994	representative TT Assembly (1/1)
Prof. Dr. M.P. Emonds, Mechelen		representative TTAC (1/1)
J. de Boer, MD, Eurotransplant	01.2014	secretary
A.P.M. van Enckevort, MD, Eurotransplant	02.2019	substitute-secretary
Mrs. A. Ramsoebhag, Eurotransplant	07.2015	assistant-secretary

Thoracic Advisory Committee (EThAC)

Name	As of	Remarks
Prof. Dr. G. Laufer, Vienna	10.2001	chair, representative of the Board
Prof. Dr. A. Zuckermann, Vienna	01.2008	representative Austria (1/2)
Prof. Dr. G. Lang, Vienna	01.2012	representative Austria (2/2)
Dr. J. Dumfarth, Innsbruck	01.2016	substitute representative Austria (1/1)
Dr. M. De Pauw, Ghent	01.2006	representative Belgium (1/2)
Prof. Dr. C. Knoop, Brussels	01.2018	substitute representative Belgium (1/2)
Prof. Dr. P. Evrard, Brussels	01.2018	substitute representative Belgium (2/2)
Prof. O. Van Caenegem, Brussels	01.2016	substitute representative Belgium (2/2)
Prof. Dr. D. Milicic, Zagreb	04.2017	representative Croatia (1/1)
Vacancy		substitute representative Croatia
Prof. Dr. J. Gummert, Bad Oeynhausen	08.2016	representative Germany (1/4)
Prof. Dr. C. Schulze, Jena	08.2016	representative Germany (2/4)
Prof. Dr. G. Warnecke, Hannover	08.2016	representative Germany (3/4)
Dr. M. Berchtold-Herz, Freiburg	08.2016	representative Germany (4/4)
Vacancy		substitute representative Germany
Dr. I. Hartyanszky, Budapest	01.2016	representative Hungary (1/1)
Dr. F. Renyi-Vamos, Budapest	01.2016	substitute representative Hungary (1/1)
Dr. R.A.S. Hoek, Rotterdam	06.2018	representative the Netherlands (1/2)
Dr. K. Caliskan, Rotterdam	10.2014	representative the Netherlands (2/2)
Vacancy		substitute representative the Netherlands
Prof. Dr. I. Knezevic, Ljubljana	07.2007	representative Slovenia (1/1)
Prof. Dr. B. Vrtovec, Ljubljana	01.2018	substitute representative Slovenia (1/1)
J.M.A. Smits MD, Eurotransplant	09.2005	secretary
C.M. Tieken MD, Eurotransplant	01.2014	substitute-secretary
Ms. V.V. de Brouwer, Eurotransplant	03.2019	assistant-secretary

Organ Process Chain Committee (OPCC)

Name	As of	Remarks
Prof. Dr. T. Soliman, Vienna	10.2018	chair, representative of the Board
Prof. Dr. A. Weissenbacher, Innsbruck	10.2018	representative Austria (1/1)
PD Dr. D. Kniepeiss, Graz	01.2016	substitute representative Austria (1/1)
Mr. B. Desschans, Leuven	01.2014	representative Belgium (1/1)
Mr. G. van Helleputte, Leuven	06.2016	substitute representative Belgium (1/1)
Dr. I. Petrovic, Zagreb	01.2018	representative Croatia (1/1)
Prof. Dr. P. Schemmer, Graz	05.2013	representative Germany (1/2)
PD Dr. J. Andrassy, München	11.2013	representative Germany (2/2)
PD Dr. K. Wiebe, Münster	01.2016	substitute representative Germany (1/2)
Mr. S. Mihaly, Budapest	01.2018	representative Hungary (1/1)
Dr. O. Deme, Budapest	01.2018	substitute representative Hungary (1/1)
Dr. J. de Jonge, Rotterdam	01.2016	representative the Netherlands (1/1)
Mr. F. Hendrix, Nijmegen	05.2019	substitute representative the Netherlands (1/1)
Dr. A. Gadzijev, Ljubljana	01.2018	representative Slovenia (1/1)
Dr. Z. Tomazincic, Ljubljana	01.2018	substitute representative Slovenia (1/1)
Prof. Dr. I. Hauser, Frankfurt am Main	01.2016	representative ETKAC
Dr. D. Mikulic, Zagreb	04.2019	representative ELIAC
Dr. R. Pol, Groningen	05.2016	representative EPAC
Prof. Dr. A. Zuckermann, Vienna	04.2008	representative EThAC
Dr. B.G. Hepkema, Groningen	01.2014	representative TTAC
Dr. D. Monbaliu, BTS	01.2016	observer Belgium (1/1)
Dr. B. Nonneman, BTS	01.2016	substitute observer Belgium (1/1)
Dr. A. Rahmel, DSO	05.2014	observer Germany (1/1)
Drs. B. Haase, NTS	01.2014	observer the Netherlands (1/1)
Mrs. K. Ooms, NTS	01.2014	substitute observer the Netherlands (1/1)
Dr. D. Avsec, Slovenija transplant	07.2015	observer Slovenia
B. Goudsmit MA, Eurotransplant	02.2019	secretary
M. de Rosner-van Rosmalen, Eurotransplant	01.2014	substitute-secretary
Mrs. A. Vijverberg-Poot, Eurotransplant	01.2014	assistant-secretary

Tissue Typing Advisory Committee (TTAC)

Name	As of	Remarks
Prof. Dr. F.H.J. Claas, Leiden	09.1995	chair, representative of the Board
Prof. Dr. G. Fischer, Vienna	11.2012	representative Austria (1/1)
Dr. U. Posch, Graz	01.2016	substitute representative Austria (1/1)
Prof. Dr. M-P. Emonds, Mechelen	02.2006	representative Belgium (1/1)
Dr. M. Toungouz, Brussels	01.2016	substitute representative Belgium (1/1)
Prof. Dr. R. Zunec, Zagreb	04.2008	representative Croatia (1/1)
Vacancy		substitute representative Croatia
Dr. T. Kauke, Munich	02.2017	representative Germany (1/2)
Dr. N. Lachmann, Berlin	11.2014	representative Germany (2/2)
Dr. G. Einecke, Hannover	01.2016	substitute representative Germany (1/1)
Dr. A. Szilvasi, Budapest	11.2015	representative Hungary (1/1)
Dr. Z. Illes, Budapest	01.2018	substitute representative Hungary (1/1)
Dr. F. Hentges, Luxembourg	09.1995	representative Luxembourg (1/1)
Dr. B.G. Hepkema, Groningen	01.2014	representative the Netherlands (1/1)
Vacancy		substitute representative the Netherlands (1/1)
Dr. B. Vidan-Jeras, Ljubljana	12.1999	representative Slovenia (1/1)
Vacancy		substitute representative Slovenia (1/1)
Dr. S. Heidt, Leiden	01.2014	secretary
J. de Boer MD, Eurotransplant	01.2014	ET-liaison officer

Ethics Committee (ETEC)

Name	As of	Remarks
Prof. Dr. J. Buturovic Ponikvar, Ljubljana	10.2019	chair, representative of the Board
Prof. Dr. C. Hörmann, St. Polten	10.2015	representative Austria (1/1)
Dr. M. Zink , St. Velt/Glan	01.2016	substitute representative Austria (1/1)
Mrs. S. van Cromphaut, Antwerp	05.2015	representative Belgium (1/1)
Prof. Dr. P. Evrard, Yvoir	01. 2018	substitute representative Belgium (1/1)
Prof. Dr. L. Zibar, Zagreb	04.2018	representative Croatia (1/1)
Vacancy		substitute representative Croatia (1/1)
Prof. Dr. R. Viebahn, Bochum	11.2006	representative Germany (1/1)
Dr. med. G.G. Greif-Higer, Mainz	01.2016	substitute representative Germany (1/1)
Dr. B. Nemes, Debrecen	10.2014	representative Hungary (1/1)
Dr. Z. Hodi, Szeged	01.2016	substitute representative Hungary (1/1)
Dr. M. J. Siebelink, Groningen	01.2014	representative the Netherlands (1/1)
Vacancy		substitute representative the Netherlands (1/1)
Dr. D. Avsec, Ljubljana	01.2014	representative Slovenia (1/1)
Mrs. B. Ustar, Ljubljana	01.2018	substitute representative Slovenia (1/1)
Vacancy	09.2019	secretary

Financial Committee (FC)

Name	As of	Remarks
Dr. E. Homan, Voorhout	05.2015	chair, representative of the Board
Mag. O. Postl, Vienna	05.1995	representative Austria (1/1)
Vacancy		substitute representative Austria (1/1)
Mr. L. Colenbie, Ghent	03.2010	representative Belgium (1/1)
Dr. N. Meurisse, Liège	01.2018	substitute representative Belgium (1/1)
PD Dr. H. Arbogast, Munich	10.2010	representative Germany (1/1)
Vacancy		substitute representative Germany (1/1)
Mr. A.L. Karsay, Budapest	02.2019	representative Hungary (1/1)
Vacancy		substitute representative Hungary (1/1)
Dr. D.L. Roelen, Leiden	10.2014	representative the Netherlands
Vacancy		substitute representative the Netherlands (1/1)
Dr. B. Kušar, Ljubljana	05.2010	representative Slovenia
Vacancy		substitute representative Slovenia (1/1)
A.S.M. Valkering MA, Eurotransplant	05.2008	secretary
Mr. C.P van der Loo, Eurotransplant	01.2019	assistant-secretary

Information Services Working Group (ISWG)

Name	As of	Remarks
PD Dr. F. Wagner, Hamburg	01.2017	chair, representative of the Board
Vacancy	01.2019	representative Austria (1/1)
Mr. W. van Donink, Edegem	10.2009	representative Belgium (1/1)
Vacancy		substitute representative Belgium (1/1)
Prof. Dr. M. Knotek, Zagreb	02.2011	representative Croatia (1/1)
Vacancy		substitute representative Croatia (1/1)
Dr. M. Opgenoorth, Berlin	01.2015	representative Germany (1/1)
Vacancy		substitute representative Germany (1/1)
Dr. S. Mihaly, Budapest	07.2013	representative Hungary (1/1)
Dr. O. Deme, Budapest	01.2018	substitute representative Hungary (1/1)
Dr. A. Nurmohamed, Amsterdam	02.2013	representative the Netherlands (1/1)
Vacancy		substitute representative
Dr. G. Čebulc, Ljubljana	05.2010	representative Slovenia (1/1)
Vacancy		substitute representative
Dr. L. Weekers, Liège	01.2016	representative ETKAC (1/1)
Vacancy	04.2014	representative ELIAC (1/1)
PD Dr. P. Schenker, Bochum	06.2017	representative EPAC (1/1)
Vacancy		representative EThAC (1/1)
Prof. Dr. G. Fischer, Vienna	01.2014	representative TTAC (1/1)
Dr. P. Branger, Eurotransplant	11.2018	secretary
Vacancy		substitute-secretary
Vacancy		assistant-secretary

Registry Advisory Committee (ERAC)

Name	As of	Remarks
Univ. Prof. Dr. G. Berlakovich, Vienna	10.2019	chair, representative of the Board
Univ. Prof. Dr. A. Rosenkranz, Graz	08.2017	representative Austria (1/1)
Vacancy		substitute representative Austria (1/1)
Prof. Dr. K.M. Wissing, Brussels	08.2017	representative Belgium (1/1)
Prof. Dr. I. Jochmans, Leuven	12.2017	substitute representative Belgium (1/1)
Prof. Dr. T. Filipec Kanizaj, Zagreb	04.2018	representative Croatia (1/1)
Vacancy		substitute representative Croatia (1/1)
Prof. Dr. R. Viebahn, Bochum	05.2018	representative Germany (1/1)
Vacancy		substitute representative Germany (1/1)
Vacancy	09.2016	representative Hungary (1/1)
Vacancy		substitute representative Hungary (1/1)
Prof. Dr. I.P.J. Alwayn, Leiden	08.2017	representative the Netherlands (1/1)
Vacancy		substitute representative the Netherlands (1/1)
Dr. D. Avsec, Ljubljana	08.2017	representative Slovenia (1/1)
Dr. A. Gadzijev, Ljubljana	12.2017	substitute representative Slovenia (1/1)
Prof. Dr. F. Bemelman, Amsterdam	08.2018	representative ETKAC (1/2)
Prof. Dr. K. Budde, Berlin	08.2018	representative ETKAC (2/2)
Prof. Dr. I. Hauser, Frankfurt Am Main	08.2018	substitute representative ETKAC (1/2)
Dr. M.H.L. Christiaans, Maastricht	08.2018	substitute representative ETKAC (2/2)
Prof. Dr. C. Strassburg, Bonn	08.2017	representative ELIAC(1/2)
Vacancy		substitute representative ELIAC (2/2)
PD. Dr. C. Margreiter, Innsbruck	08.2017	representative EPAC (1/2)
Vacancy		representative EPAC (2/2)
Vacancy		substitute representative EPAC (2/2)
Vacancy		substitute representative EPAC (2/2)
Prof. Dr. G. Warnecke, Heidelberg	08.2017	representative EThAC (1/2)
Prof. Dr. A. Zuckermann, Vienna	08.2017	representative EThAC (2/2)

Name	As of	Remarks
Vacancy		substitute representative EThAC (2/2)
Vacancy		substitute representative EThAC(2/2)
Dr. S. Heidt, Leiden	08.2017	representative TTAC (1/1)
Dr. B.G. Hepkema, Groningen	04.2018	substitute representative TTAC (1/1)
Dr. Med. G.G. Greif-Higer, Mainz	08.2017	representative ETEC (1/1)
Vacancy		substitute representative ETEC (1/1)
Univ. Prof Dr. T. Soliman, Vienna	03.2019	representative OPCC (1/1)
Vacancy		substitute representative OPCC (1/1)
Ms. M. van Meel, Eurotransplant	01.2018	secretary
Vacancy		assistant-secretary
Vacancy		substitute-secretary

3.3 Recommendations approved

The Eurotransplant advisory committees meet several times a year and discuss the impact of new scientific developments in the field of organ allocation, organ procurement as well as transplant ethics. Their conclusions are proposed as recommendations or policies to the Board of Eurotransplant. Through this practice, transplant regulations throughout Eurotransplant have a great degree of uniformity.

A distinction has been made between recommendations and policies:

Eurotransplant recommendation
Recommendations formally fall under the competence of the responsible national authorities of the Eurotransplant member states. These recommendations have to be approved by the responsible national authorities of these member states prior to implementation.
A typical example of a Eurotransplant recommendation according to this distinction would be a change in allocation rules.
With the approval of the recommendation by the responsible national authority it becomes binding in that country and Eurotransplant can refer to this approval and use the respective national authority to enforce the recommendation.

Eurotransplant policy
Policies concern a working procedure or policy of Eurotransplant. Policies are sent to national authorities for information only; their main goal is to increase transparency of the working procedures of Eurotransplant and its partners.

In 2019, the following recommendations (R-) and policies (P-) were submitted by the advisory committees and approved by the Eurotransplant Board:

Eurotransplant Kidney Advisory Committee (ETKAC)

P-KAC02.18 – Decision time in the recipient-oriented rescue allocation (EA) of kidneys

In the EA of kidneys, the transplant centers receive a maximum of 60 minutes to enter the decision on the kidney offer.

R-KAC01.19 - Indications for high urgent kidney transplantation

In specific situations a high urgency (HU) status can be requested if one of the following criteria is met:

1. Imminent lack of access to either hemodialysis or peritoneal dialysis;
2. Severe bladder problems (hematuria, cystitis etc.) due to kidney graft failure after simultaneous kidney+pancreas transplantation, provided that the pancreas graft is bladder-drained and functioning adequately;
3. Other indications can be granted in exceptional cases if 2/3 of the eligible ETKAC members support the request.

R-KAC02.19 – Mandatory recipient items

The following mandatory items must be entered at time the patient is registered on the kidney waiting list. The items must be updated to keep the patient on the waiting list after 5 years of waiting and should be reevaluated at time the patient is transplanted:

1. **Diabetes**[1]
   Diabetes LOV:
   ☐ No
   ☐ Type I
   ☐ Type II
   ☐ Type other

   Start diagnosis: year

2. **Hypertension**[2]
   Hypertension: Yes / No
   Hypertensive medication taken: Yes / No
   Start hypertensive treatment: year

1 ***Definitions WHO:***
Type 1 diabetes *(previously known as insulin-dependent, juvenile or childhood-onset diabetes) is characterized by deficient insulin production in the body. People with type 1 diabetes require daily administration of insulin to regulate the amount of glucose in their blood. If they do not have access to insulin, they cannot survive. The cause of type 1 diabetes is not known, and it is currently not preventable. Symptoms include excessive urination and thirst, constant hunger, weight loss, vision changes and fatigue.*
Type 2 diabetes *(formerly called non-insulin-dependent or adult-onset diabetes) results from the body's ineffective use of insulin. Type 2 diabetes accounts for the vast majority of people with diabetes around the world (1). Symptoms may be similar to those of type 1 diabetes but are often less marked or absent. As a result, the disease may go undiagnosed for several years, until complications have already arisen. For many years type 2 diabetes was seen only in adults, but it has begun to occur in children.*

Type other:
Impaired glucose tolerance *(IGT) and impaired fasting glycaemia (IFG) are intermediate conditions in the transition between normal blood glucose levels and diabetes (especially type 2), though the transition is not inevitable. People with IGT or IFG are at increased risk of heart attacks and strokes.*
Gestational diabetes *(GDM) is a temporary condition that occurs in pregnancy and carries long-term risk of type 2 diabetes (2). The condition is present when blood glucose values are above normal but still below those diagnostic of diabetes (3). Women with gestational diabetes are at increased risk of some complications during pregnancy and delivery, as are their infants. Gestational diabetes is diagnosed through prenatal screening, rather than reported symptoms.*

2 *See hypertension rainbow chart at heart.org/bplevels*

3. **An event (hospitalization, thromboembolic, revascularization or heart failure >III) of a cardiovascular disease has taken place:**
   - ☐ Coronary heart disease – disease of the blood vessels supplying the heart muscle;
   - ☐ Cerebrovascular disease – disease of the blood vessels supplying the brain;
   - ☐ Peripheral arterial disease – disease of blood vessels supplying the arms and legs;
   - ☐ Other; specify .....

4. **Malignancy**
   History of malignancy: Yes / No evidence
   - ☐ Skin Melanoma Year diagnosis:
   - ☐ Skin Non Melanoma Year diagnosis:
   - ☐ CNS Year diagnosis:
   - ☐ Genitourinary Year diagnosis:
   - ☐ Breast Year diagnosis:
   - ☐ Thyroid Year diagnosis:
   - ☐ Tongue/Throat/Larynx Year diagnosis:
   - ☐ Lung Year diagnosis:
   - ☐ Leukemia/Lymphoma Year diagnosis:
   - ☐ Liver Year diagnosis:
   - ☐ Other, specify..... Year diagnosis:

5. **Smoking**
   Smoking: Y/N
   Current smoking / only smoking in the past
   Pack years no.....

6. **Height (patients with pediatric bonus)**

7. **Weight**

8. **Cognitive development (patients with pediatric bonus)**
   - ☐ Definite Cognitive delay/impairment
   - ☐ Probable Cognitive delay/impairment
   - ☐ Questionable Cognitive delay/impairment
   - ☐ No Cognitive delay/impairment
   - ☐ Not Assessed

9. **Motor development (patients with pediatric bonus)**
   - ☐ Definite Motor delay/impairment
   - ☐ Probable Motor delay/impairment
   - ☐ Questionable Motor delay/impairment
   - ☐ No Motor delay/impairment
   - ☐ Not Assessed

R-KAC03.19 – Exclusion of AM and immunized patients from EA and rescue allocation

It is not allowed to select a patient that require a prospective XM in the local center or a patient included in the AM program via the Extended Allocation (EA – recipient oriented rescue allocation) or via rescue allocation.

P-KAC05.19 – Logistic reason to start rescue of kidneys from ESP donors

Rescue allocation of kidneys from donors ≥ 65 years can be started if the organ has not been accepted for any patient within 5 hours after procurement or declined > 5 hours after procurement.

P-KAC06.19 – Allocation of kidneys of HIV positive donors

The kidneys of HIV positive donors are not allocated via normal allocation but will be allocated via deviant allocation rules of Eurotransplant (e.g Extended Allocation in the country or region of the donor, rescue allocation etc.) as laid down in de ET Manual.

Eurotransplant Liver and Intestine Advisory Committee (ELIAC)

P-LAC01.19 –HU liver status re-installment and maximum of HU waiting days

Patients who are registered on high urgency status and are not transplantable for medical or organizational reasons must be registered as not transplantable. The waiting days achieved up to the NT registration will be credited to the patient in case of a new HU registration within the first 14 days after the first application of the HU status. A HU status expires automatically 14 days after it has been granted. The HU status must then be requested again. Waiting days accumulated up to this point are reset to 0 when the HU status is newly assigned.

P-LAC02.19 –HU liver criteria -Acute liver failure (rephrase R-LAC03.18)

General remarks:
- Encephalopathy is an absolute prerequisite for the HU status, in combination with the criteria below. Patients with acute liver failure without encephalopathy need to undergo an individual HU audit.
- HU status should be granted for patients with acute liver failure fulfilling Kings College criteria for paracetamol intoxication or non-paracetamol intoxication or fulfilling Clichy criteria in case of hepatitis B only.
- Pediatric hepatic encephalopathy is classified according to the PALF study group criteria.

Kings college criteria for acute liver failure due to paracetamol intoxication (in absence of cirrhosis)
Hepatic encephalopathy ≥grade 1 present,
And fulfills at least one of the two following criteria:
1. Arterial pH <7.25 despite fluid resuscitation and >24 h since ingestion* **and / or**
2. S-lactate >3.5 mmol/L on admission or >3.0 mmol/L after fluid resuscitation

Or fulfills all 3 criteria below:
1. Hepatic encephalopathy ≥grade 3 and
2. Anuria/s-creatinine >300 µmol/L (3.4 mg/dl) and
3. INR >6.5

* Any pH-value in measurements >24 h since ingestion of paracetamol

Kings college criteria for acute liver failure not due to paracetamol (absence of cirrhosis)
Fulfills:
1. INR >6.5 (PT>100 sec) **and**
2. Hepatic encephalopathy ≥grade 1

Or Hepatic encephalopathy ≥grade 1 **and** fulfills 3 out 5 criteria:
1. Hepatitis of unknown aetiology, idiosyncratic drug reaction, toxin induced **and/or**
2. Age <10 years or >40 years **and/or**
3. Interval jaundice and onset of hepatic encephalopathy >7 days **and/or**
4. Total bilirubin >300 µmol/L (>17.5 mg/dl) **and/or**
5. INR >3.5

Clichy criteria for hepatitis B virus-induced acute liver failure (absence of cirrhosis)
Fulfills**:**
1. Hepatic encephalopathy ≥grade 3 **and**
2. Factor V ≤20% of normal if age <30 year **or**
   Factor V ≤30% if age ≥30 year

PALF Study Group criteria on Pediatric Hepatic Encephalopathy
1. Biochemical proof of acute liver failure (above normal values of ASAT and ALAT) **and**
2. INR ≥ 2.0, not correctable with parenteral Vitamin K,
3. Presence of HE not mandatory

Or:
1. Biochemical proof of acute liver failure (above normal values of ASAT and ALAT) **and**
2. INR ≥ 1,5 <2.0, not correctable with parenteral Vitamin K **and**
3. Hepatic encephalopathy (< 4 years of age according to Whitington, ≥ 4 years of age according to adult criteria)

P-LAC01.19 –HU liver status re-installment and maximum of HU waiting days

Only patients with an acute presentation of Wilson disease evolving into acute liver failure are eligible for HU listing. Cirrhosis may be present.
Cases of acute on known chronic Wilson disease should undergo individual audit.

Criteria:
INR >1.5 **and**
hepatic encephlopathy ≥grade 1 **and**
fulfills 2 out of 8 criteria:
1. Kayser-Fleisher rings* **and/or**
2. Coombs-negative hemolytic anemia **and/or**
3. hepatic copper concentration >4 µmol/g **and/or**
4. urinary copper >9 µmol/24 h **and/or**
5. serum ceruloplasmin <0.15 g/L **and/or**
6. below normal or normal alkaline phosphatase (AP) and/or AST below 300IU/L **and/or**
7. presence of ATP7B gene mutations **and/or**
8. copper deposition on brain MRI** or typical neurology***

* *Report by ophthalmologist required*
** *MRI report required*
*** *Neurology consult required*

P-LAC04.19 –HU liver criteria - General criteria (rephrase R-LAC02.18)

General criteria for the HU liver status:
- The HU status should be granted for eligible liver transplantation candidates with an "imminent" risk of death
- Patients with acute on chronic liver disease (AoCLF) (besides the two pediatric indications and exceptions for Wilson disease and Budd-Chiari syndrome) are not eligible for HU listing.
- Patients with secondary liver failure have to undergo an individual audit.

P-LAC05.19 – HU liver criteria - Budd-Chiari syndrome (rephrase R-LAC05.18)

- Only patients with an acute presentation of Budd-Chiari syndrome evolving into acute liver failure are eligible for HU listing. Cirrhosis may be present.
- Patients should be worked up for inherited or acquired coagulopathy.
- In patients with myeloproliferative disease, an oncological consult is required to specify the prognosis, in particular under the condition of chronic immunosuppression.
- For an HU application, it is necessary to document that TIPS/revascularization was unsuccessful or that due to anatomical/technical circumstances a successful procedure cannot be performed.

Criteria:
fulfills:
Rotterdam score* > 1.5

* *Rotterdam score = 1.27 x hepatic encephalopathy[a] + 1.04 x ascites[b] + 0.72 x INR[c] + 0.004 x total bilirubin[d]*
a hepatic encephalopathy present = 1, absent = 0;
b ascites present = 1, absent = 0;
c INR ≥2,3 = 1, <2.3 = 0;
d total bilirubin in µmol/L

P-LAC06.19 – HU liver criteria - Anhepatic state (rephrase of R-LAC06.18)

Patients after total hepatectomy to control traumatic liver hemorrhage or total hepatectomy for "toxic liver syndrome" in the setting of fulminant hepatic failure are eligible for an HU status.

P-LAC07.19 – HU liver criteria - Primary graft non-function (rephrase of R-LAC07.18)

HU status for PNF should be granted up to 14 days post-transplant and fulfilling the OPTN guidelines regarding AST, INR, serum lactate and total bilirubin cut-off values.

Criteria:
PNF within 14 days after LT **and**
Peak AST ≥3000IU/L **and**
1 out of 3 criteria:
1. INR ≥2.5 **and/or**
2. s-lactate ≥4 mmol/L a**nd/or**
3. total bilirubin ≥10 mg/dL (values measured on postoperative day 3, biliary obstruction being excluded)

P-LAC08.19 – HU liver criteria - Hepatic artery thrombosis (rephrase of R-LAC08.18)

HU liver status for re-transplantation due to hepatic artery thrombosis (HAT) can be granted in case of:
-Graft failure associated with HAT and
-Occurrence ≤90 days after liver transplantation and
-Peak AST ≥3000IU/L and
-1 out of 3 criteria:
1. INR ≥2.5 and/or
2. Arterial pH ≤ 7.3 or venous pH ≤ 7.25
3. s-lactate ≥4 mmol/L and/or

Patients with HAT without graft failure should receive a SE.

R-LAC09.19 –Definition of pediatric liver recipient

A patient on the liver waiting list is considered as pediatric until the 18th birthday.
The pediatric MELD score will continue the standard increase until the 18th birthday. Upon the 18th birthday the pediatric MELD score will be frozen. The frozen pediatric MELD score will be valid until delisting.

Eurotransplant Pancreas Advisory Committee (EPAC)

P-PAC01.19 –Mandatory recipient items

The following mandatory items must be entered at time the patient is registered on the pancreas waiting list. The items must be updated to keep the patient on the waiting list after each year of waiting and should be re-evaluated at time the patient is transplanted:

1. **Hypertension**[3]
   Hypertension: Yes / No
   Hypertensive medication taken: Yes / No
   Start hypertensive treatment: year

2. **An event (hospitalization, thromboembolic or revascularization) of a cardiovascular disease has taken place:**
   - ☐ Coronary heart disease – disease of the blood vessels supplying the heart muscle;
     - ☐ Coronary bypass surgery
     - ☐ Percutaneous coronary intervention (PCI)/ Stent implantation
     - ☐ Other heart surgery; specify .....
   - ☐ Cerebrovascular disease – disease of the blood vessels supplying the brain;
   - ☐ Peripheral arterial disease – disease of blood vessels supplying the legs;

   Fontaine Classification:
   - ☐ Stage I: Asymptomatic
   - ☐ Stage II a: Claudication after walking a distance that exceeds 200 meters
   - ☐ Stage II b: Claudication after walking a distance inferior to 200 meters
   - ☐ Stage III: Ischemia rest pain
   - ☐ Stage IV: Ulceration or tissue loss (gangrene)
   - ☐ Unknown
   - ☐ Other; specify.....

3. **Smoking**
   Smoking: Y/N
   Current smoking / only smoking in the past
   Pack years no.....

4. **Height**

5. **Weight**

6. **BMI** (automatic calculation)

R-PAC02.19 –Revision of SU inclusion criteria

A patient can be considered for status SU when she/he fulfils one of the following 2 criteria:

1. when she/he suffers from **problematic hypoglycemia** defined as ≥2 episodes of severe hypoglycemia (requiring assistance from a third party) in the past 12 months accompanied by **impaired awareness of hypoglycemia** (IAH) defined as a CLARK score or GOLD score ≥ 4 points.
   Requirements:
   In order to be accepted, the request for SU should be accompanied by a letter of the treating diabetologist (in English) stating:
   - that the above criteria are fulfilled
   - the measures that were taken to deal with the problematic hypoglycemia

2. She/he suffers from **early graft failure** of a vascularized pancreas transplant with re-registration and SU request **within two weeks** after transplantation.
   Early failure is defined as:
   i. Vascular thrombosis
   ii. Bleeding
   iii. Primary non function
   iv. Anastomotic leaks
   Requirements:
   In order to be accepted, the request for SU should be accompanied by a letter of the treating transplant surgeon (in English) stating the reason for early graft failure and the reason for early re-transplantation.

Listing of a recipient fulfilling one of the above criteria can be accepted on the SU waiting list only upon approval by the EPAC.

If a recipient does not fulfill one of the above criteria, but is still regarded to be in need of an SU status, then a special request for listing on the SU waiting list should be sent to Eurotransplant together with a letter from the treating diabetologist describing in detail the clinical history and data of the recipient and the reason for the SU request. The request will be evaluated by members of the ET Pancreas Advisory Committee (EPAC). Listing of such a recipient on the SU waiting list can be performed upon approval by the EPAC.

3 *See hypertension rainbow chart at heart.org/bplevels*

Eurotransplant Thoracic Advisory Committee (EThAC)

R-ThAC01.19 –Listing criteria for International HU Heart status – general

HU patients are patients refractory for current heart failure (HF) treatment and admitted to an intensive care unit, intermediate care unit or a heart failure unit (except for box B patients) of the transplant center*.
At time a change in the clinical status with impact on the HU status is noticed, the transplant center has the responsibility to update the HU status:

1. the patient is no longer in a transplantable condition; the patient has to be put on **NT (not transplantable)**
2. the patient does not fulfill the HU criteria anymore; The patient has to be put on **T (transplantable)**.

* *The HU status of a patient requires that the patient is hospitalized in the transplant center or in a hospital cooperating with the transplant center and using the same medical therapy guidelines as the transplant center. This hospital is to be situated at such a distance that a transplant center physician is able to visit the patient at least once a week and this visit has to be documented.*

R-ThAC02.19 –Listing criteria for International HU Heart status. Box A (rephrase of R-ThAC01.18)

These are patients, who are suffering from hypoperfusion symptoms due to severely impaired cardiac function after all alternative treatment methods have been exhausted (except for permanent ventricular assist devices) and who are dependent on inotropes.
Patients should be under optimal medical treatment according to current ESC guidelines for HF.

The inotrope dosage recommendations apply, which are described in the Guideline on Acute and Chronic Heart Failure published by the European Society of Cardiology, ESC, 2016, for initial inotrope therapy and maintenance therapy (e.g. dobutamine 2–20µg/kg or milrinone 0.375–0.75µg/kg/min, Enoximone 5-20 µg/kg/min as monotherapy or also as combination therapy) I In the case of a combination therapy at least one drug dosage has to fall within the indicated ranges and where a continuous administration is necessary a dosage level within the indicated ranges is required.
Levosimendan has special pharmacokinetic properties and according to the ESC guidelines a single dose of 0.1-0.2 µg/kg/min over a period of 24 hours is recommended.

Patients should fulfil all **3 criteria** for cardiac hypoperfusion syndrome and at the same time **one of the 2 definitions** for inotrope dependency:

Cardiac hypoperfusion syndrome with the necessity of inotrope administration:

1. Clinical features: Symptoms and clinical signs of terminal heart failure (NYHA III, NYHA IV, AHA/ACC Stadium D).
2. Haemodynamic features:
   - Cardiac Index (CI) < 2.0L/min/m2 and
   - mixed venous saturation (SvO2) < 50% and
   - pulmonary capillary wedge pressure (PCWP) > 15mmHg
3. Signs of secondary organ damage.
   At least one of the following criteria has to be fulfilled:
   - lactate above normal (the clinical laboratory's reference range)
   - bilirubin above normal (the clinical laboratory's reference range)
   - calculated GFR < 60 mL/min (excluding renal failure)
   - Serum sodium < 135 mmol/L

Inotrope dependency:

1. When under continuous administration of Dobutamin, Milrinone or Enoximone for at least 72 hours
   - the CI stays < 2.0L/min/ m2 OR
   - When there is proof of a decrease in CI (to below 2.0l/min/m2) while Dobutamin, Milrinone or Enoximone are reduced and fall under the minimal dosage as defined by the ESC guidelines,

2. When after a single infusion of Levosimendan (in a 24h interval) within a period of 14 days the cardiac hypoperfusion syndrome (according to the above described definition) returns and inotrope administration is re-indicated

P-ThAC03.19 –LAS parameter documentation and measurement conditions (rephrase of R-KAC05.18)

The LAS parameters should be documented and measured according to the agreed standards following the ET manual.

R-ThAC04.19 –Listing criteria for International HU Heart status. Box B - High urgency for patients with a VAD/TAH

Patients who have had a ventricular assist device (VAD) implanted (durable permanent long term device) or who have had a total artificial heart (TAH) implanted, are put on the waiting list and generally classified as elective (transplantable – T).

Patients with a VAD/TAH can only be classified as high urgent (HU), if one of the life-threatening conditions defined below occurs as a result of the implantation of the VAD/TAH, and if the patient is hospitalized in the transplant center. Staying on an intensive care ward is not required.

The interdisciplinary transplant team can decide by exception and based on medical criteria to treat the patient in a rehabilitation facility for central neurologic complications. This decision has to be documented. In each case it has to be safeguarded that the same treatment guidelines are adhered to as in the transplant center. In all cases it has to be ensured that the patient must be visited daily by a doctor and that care by nursing staff is provided for. In addition, the patient has to be visited at least once a week by a doctor from the transplant team. This visit has to be documented.

Life-threatening VAD/TAH complications, which permit listing on the high urgent list, are as follows (A-H):

A. VAD/TAH-related cerebral complications
This indication is valid at the earliest 30 days after implantation of the VAD/TAH and the patient fulfils all criteria below:

1. A new-onset ischaemic stroke or cerebral haemorrhage with evidence of neurological deficit confirmed in a neurological consultation and evidenced by cranial CT scan.
2. The patient is on a device specific anticoagulation which includes adaptation for the individual patient.

B. Peripheral arterial embolism
This indication is valid at the earliest 30 days after implantation of the VAD/TAH and the patient fulfils all criteria below:

1. A new-onset peripheral arterial embolism with evidence obtained from medical imaging procedures and with corresponding clinical symptoms.
2. The patient is on a device specific anticoagulation which includes adaptation for the individual patient.

C. Treatment-refractory gastrointestinal (GI) bleeding

This indication is valid at the earliest 30 days after implantation of the VAD/TAH and the patient fulfils all rules of criterion I (2 rules) or criterion II (3 rules) and excludes patients that have anaemia of a non-determined source.

Criterion I

1. At least three inpatient hospital stays within six months, which were necessary due to recurrent GI bleeding events requiring repeated transfusions.
2. Patient is on device specific anticoagulation which includes adaptation for the individual patient.

Criterion II

1. Transfusion of at least 16 units of packed red blood cells over a period of at most four weeks in order to obtain a stable Hb according to the hospital's guidelines. If Hb stabilizes and the patient no longer requires units of packed red blood cells, this is to be notified to Eurotransplant and the HU status no longer applies. This has to be confirmed by a specialist.
2. No possibility of endoscopic or surgical correction of the bleeding source.
3. The patient is on device specific anticoagulation which includes adaptation for the individual patient.

D. Aortic insufficiency on VAD

The indication is valid at the earliest 30 days after implantation of the VAD and the patient fulfils all criteria below:

1. New-onset of moderate or severe aortic insufficiency with a mean arterial pressure of or below 80 mmHg (invasive measurement)
2. Pulmonary capillary wedge pressure above 15 mmHg
3. Symptomatic heart failure corresponding to NYHA III or IV
4. No possibility of surgical or interventional treatment of the aortic valve insufficiency to be documented in the minutes of the interdisciplinary heart team.

E. Chronic right heart failure (RHF) after LVAD implantation

This indication is valid at the earliest 30 days after implantation with exclusion of LVAD malfunction, cardiac tamponade and hypovolemia and the patient fulfils all rules of criterion I (1 rule) or criterion II (2 rules).

Criterion I

1. Inability to wean from a temporary right ventricular assist device. The first weaning attempt to prove eligibility of HU listing is done not earlier than 30 days after the RVAD implantation. There should be 2 failed weaning attempts with at least one-week interval between them. These failed weaning attempts have to be documented in the files and shown by reduction in LVAD flow at the same rotational speed, CI has to be below 2 L/min/m^2.

Criterion II

1. Evidence of a cardiac hypoperfusion syndrome in the absence of LVAD failure. RHC with CI below 2 L/min/m^2 or CI equal to or above 2 L/min/m^2 with inotropic treatment (except for increased pulmonary arterial wedge pressure)*. Right heart failure is evidenced and documented by RHC and echocardiogram
2. If, in the opinion of the transplant case conference for this specific patient, an upgrade to a BVAD/TAH represents a disproportionately high risk.

In both cases, the HU status is to be checked and must be documented every two weeks (weaning of RVAD or inotropes according to the definitions above. In case of re-evaluation only 1 instead of 2 weaning attempts is necessary. This information has to be included for the HU re-evaluation.

* conform the criteria for inotropic treatment (see Box A criteria for listing for HU Heart Status)

F. VAD/TAH Infections

The indication is valid at the earliest 30 days after implantation of the VAD/TAH.

A first-time and isolated macroscopically visible infection of the driveline exit site, also with positive evidence of bacteria in the blood culture, does not qualify for HU status.

Only in the event of repeated occurrences, after corresponding and adequate therapeutic measures have been taken, the patient can be listed with an HU status. This is the case in the following circumstances where all rules of criterion I (3 rules) or criterion II (1 rule) or criterion III (1 rule) have to be fulfilled:

Criterion I

1. Documentation of the deep driveline infection and/or pocket infection and/or an infection in the region of the central components of the VAD/TAH by at least one of the following:
   - Local clinical criteria (e.g. reddening) or
   - Findings typical of infection in CT imaging (e.g. abscess formation or air bubbles at the earliest 3 months after implantation) or
   - A positive PET-CT at the earliest 3 months after implantation of the VAD/TAH
2. Signs of systemic inflammation (leucocytosis or elevated CRP or elevated procalcitonin or temperature > 38.5°C)
3. Need for antibiotic treatment

Criterion II

1. Recurrent bacteraemia despite targeted antibiotic treatment after the exclusion of other causes or a failed trial of the discontinuation of an antibiotic, if clinically justifiable.

Criterion III

1. Exposure of the central components of the pump which cannot be treated by surgical intervention. This criterion should be proven by pictures and these should be made available to the auditors.

In all cases, the status is to be checked again by the transplant centre after 4 weeks for the initial request and 8 weeks for the repeat request. The respective previously cited condition is to be documented and the evidence has to be provided to Eurotransplant. In the event of a failed discontinuation of an antibiotic treatment, the evidence of persistent signs of inflammation is not necessary for the renewed granting of the HU status.

G. Device failure

This indication is valid at the earliest 30 days after implantation of the VAD/TAH.

A device-related malfunction of a VAD/TAH, which is not due to device-induced thrombosis, can justify the HU status of a patient listed for a heart transplant if the patient fulfils all following criteria;

1. The device-related or position-related malfunction of the VAD/TAH affects at least one component of the mechanical circulatory support.
2. The device-related malfunction of the VAD/TAH can only be resolved with a change of the entire system, and this represents a too high risk for the respective patient in the opinion of the transplant team.
3. The device-related malfunction of the VAD/TAH has currently led to insufficient circulatory support in the form of a low cardiac output syndrome or threatens a complete interruption of the support.

The device-related malfunction of a VAD/TAH and the correlating status of the affected patient have to be documented.

H. Recurrent VAD/TAH thrombosis
The indication is valid at the earliest 30 days after implantation of the VAD/TAH and the patient fulfils all following criteria:
1. Recurrent VAD/TAH thrombosis after a previous exchange of the VAD/TAH or intravenous lytic therapy due to pump thrombosis
2. Suspect changes in the VAD/TAH parameters according to the manufacturer's specifications and algorithms after evaluating the log files (e.g. VAD/TAH current, VAD/TAH flow, power index, etc.)
3. Raised LDH (at least 3 times above the upper limit of normal) and one of the following parameters:
   - Haemoglobinuria
   - Signs of insufficient LV unloading (positive RAMP test)

R-ThAC05.19 – Listing criteria for International HU Heart status. Box C - Exceptional cases

One of the below mentioned criteria (A-F) must be fulfilled:

A. Hypoperfusion syndrome on short term device support
Patients with hypoperfusion syndrome who are on short term device support may be considered as candidate for HU heart listing, but a detailed individual motivation is required.

B. Acute re-transplantation
In exceptional cases patients with primary graft dysfunction grade III (PGD grade III), which is defined as the need for mechanical support within the first 72 hours after transplantation, may be eligible for HU listing. PGD grade III is generally not an indication for acute re-transplantation neither for an HU status.
The transplant center has to provide a detailed description of the circumstances and all tried possible alternative treatments.

C. Amyloidosis
Patients with cardiac amyloidosis in whom absence of multiple organ involvement must be demonstrated.
The consensus document (Gertz et al. Am J Hematology 2005) is guiding.
The diagnosis per se does not suffice as HU indication.
All patients (AL, ATTR) will be judged on a case by case basis.

D. Hypertrophic or Restrictive cardiomyopathy
Patients with HCM or RCM as defined by the European Society of Cardiology Position Statements from 2008 and 2012 (European Heart Journal 2008, 29:270-276 and European Heart Journal 2012, 33: 296-304) .
The diagnosis per se does not suffice as HU indication.
Patients will be judged on a case by case basis.

E. Grown-ups with congenital heart disease (Adults with congenital heart disease)
Grown-ups with congenital heart disease (GUCH) [Adults with congenital heart disease (ACHD)].
The diagnosis per se does not suffice as HU indication.
Patients will be judged on a case by case basis.

F. Uncontrollable life-threatening arrhythmias
Patients with uncontrollable life-threatening arrhythmia's despite maximal therapeutic interventions may be considered for HU listing.
All treatment options are exhausted and must be documented.

Patients will be judged on a case by case basis.

R-ThAC06.19 – Validation intervals of the HU heart status.

There are two intervals for the validation of the HU status:
1. After the first HU request the HU status is valid for 4 weeks
2. Thereafter with every re-evaluation of the HU request the HU status is valid for 8 weeks

R-ThAC07.19 – LAS rank scheme by equal LAS value.

LAS patients with an equal LAS value are ranked according to the following scheme:
1. First LAS (value that is used in the match)
2. Then patients on ICU
3. Then active waiting time, this is time since listing minus all the NT periods.
4. Then total listing time (including hours)
5. Then ET nr, oldest first.

P-ThAC08.19 – Mandatory data submission for LAS in children < 12 years.

The following LAS data of children < 12 years have to be submitted at time of registering the patient on the waiting list and thereafter every 3 months for Germany and every 6 months for the other countries:
1. Supplemental oxygen
2. Oxygen requirement at rest (titration rate or PO2 value)
3. Assisted ventilation
4. Date of intubation
5. ECLS
6. Date of start ECLS
7. paCO2 current
8. PAP systolic
9. Cardiac index
10. Diabetes
11. Creatinine
12. Renal replacement therapy
13. Intensive Care
14. FVC% predicted

P-ThAC09.19 – Allocation of thoracic organs from HIV positive donors

The thoracic organs from HIV positive donors are not allocated via normal allocation but will be allocated via deviant allocation rules of Eurotransplant (e.g. Extended Allocation in the country or region of the donor, rescue allocation etc.) as laid down in de ET Manual.

Eurotransplant Tissue Typing Advisory Committee (TTAC

R-TTAC02.18 –Donor HLA typing requirements

To facilitate the introduction of virtual crossmatching, extended donor HLA typing including HLA-DRB 3,4,5, -DQA, -DQB, -DPA and -DPB is required.
Eurotransplant tissue typing labs will be given 2 years for implementation after approval of their respective member state.

Eurotransplant Financial Committee (FC)

P-FC01.19

The Financial Committee recommends the Board to approve the annual accounts 2018.

P-FC02.19

The Financial Committee recommends the Board to discharge the treasurer and the Management Team for their financial duties of 2018.

P-FC03.19

The Financial Committee recommends the Board to approve the budget proposal for 2020.

Eurotransplant Registry Advisory Committee (ERAC)

P-RAC01.19 – E-voting

The ERAC would like to change the voting section of their bylaws as follows, thereby permitting evoting:

6.1 No valid resolutions can be taken unless at least an absolute majority of committee members are present or represented at the scheduled meetings. The membership of a committee is personal. A member of the committee can have him/herself represented in a committee meeting in writing, but solely by a co-member of that committee. Each committee member can only represent one absent member. If at a meeting less than the absolute majority of members are present or represented (quorum), the committee chairman has the possibility to hold the meeting and to have resolutions taken at the meeting put to a confirmatory e-vote following the procedure detailed under article 6.6. Resolutions on subjects discussed during committee meetings after being added to the agenda as described under article 6.5 have also to be taken by e-voting.

6.2 Each member of the committee shall have the right to cast one vote. Members with an authorization in writing to represent a fellow committee member can cast an additional vote on behalf of the absent member.

6.3 Decisions of the committee shall be adopted with an absolute majority of votes of the members, defined as half of the participants present at the meeting plus one. In a tie vote, the proposal shall be deemed to be rejected.

6.4 In a meeting of the committee only such subjects may be discussed as described on the agenda distributed ahead of the meeting. An item can be put on the agenda during the meeting in case at least two thirds of participants vote to add the item to the agenda and at least a majority of committee members are taking part in the meeting. Decisions on subjects that have been discussed during committee meetings without being of the agenda distributed ahead of the meeting are to be confirmed by e-voting.

6.5 The chairman of the committee has the possibility to hold e-votes under the conditions detailed in article 6.1. Votes are to be held using the committee account of the doodle.com/web survey application.

6.6 The proposals to be voted on must be formulated in clear and unequivocal language under the responsibility of the chairman. The invitations to vote are send out by the secretary with a 2week delay to complete the votes. In case an objection to the e-vote has been emitted by 2 or more potential voters the vote is cancelled and resolutions to be voted upon eventually reformulated by the committee chairman. In case no consensus on the resolutions to be submitted to an e-vote can be reached the vote is delayed until the next physical meeting of the committee. Resolutions are voted on by selection of one of the available choices. Null votes can be emitted and will be counted. The votes are nominal and open, providing control that votes have not been cast by individuals without voting rights.

The result of the vote is duly accepted if:
a) two thirds of the committee members with voting rights participated in the e-voting;
b) at least a simple majority of voters, defined as half of the participants in the vote plus one, has either accepted or rejected the resolution.

In case more than two choices were available and none has reached an absolute majority a second round of voting on the two choices with the highest number of votes will be organized.

The date and result of the e-vote is communicated to all committee members with voting rights by the secretary and is added to the minutes of the last committee meeting. In case these minutes have already been distributed since the last meeting of the committee an amended version of the minutes will be distributed.

The ERAC suggests to also implement this option for all other advisory committees to have a more standardized and transparent workflow across all Eurotransplant Advisory Committees.

Eurotransplant Board (P-ET)

P-ET01.19 –Information on recommendations and policies to advisory committee members

The respective advisory committee members will receive information of the conclusion of the board on the recommendation/policy. The information will be:
1. It has been approved and is sent for approval (recommendation) or for information (policy) to the national competent authorities.
2. It has been declined by the Board and is given back to the respective advisory committee with the grounds of decline.

3.4 Report of the Eurotransplant office

Allocation services

Allocation services is the primary process of Eurotransplant. The major task of the department is the allocation of donor organs. The department consists of 26 employees; 6 doctors and a team of 20 allocation officers. The main challenge of 2019 for the allocation services - in addition to the timely allocation of donor organs to patients - was the relocation to the new building of Eurotransplant in Leiden. In 2019, 2362 donors were reported. From 2042 donors, at least one organ was successfully allocated and transplanted in a patient.

Despite the relocation, the primary care process of Eurotransplant had to continue 24/7. The second floor of the new Eurotransplant office is intended for Allocation services and development. More than half a year has been spent on the drawings for the new workplace. Allocation went from a small housing to a completely new working environment that benefits professionalism. That has resulted in more efficient contact, cleaner working environment and more overview of files. The (computer) screens that are important for the allocation are more visible for the allocation duty officers. In the center of the allocation is now a large map on which the locations and contact details of Transplant Centers are clearly visible.

In 2019, there was a high turnover of allocation officers. Eight vacancies, mainly for allocation officers, were open in 2019.The capacity to train new employees is limited. Before the allocation officers can do their work independently, they receive a six months training. Therefore, extra attention is paid to give them a good perspective in their work in order to retain personnel.

Allocation is central to the other activities of Eurotransplant. Departments such as Registry, Data management and internal and external communication depend in their work on the activities and information provision on the allocation department. In 2020 it is planned to give attention to providing information from allocation services to other departments through regular and central updates.

Allocation development

Transplantation medicine is work in progress. Better methods are being developed to help patients well and in time. Improving and adapting methods is also very import for the work of Eurotransplant. In 2019, the allocation development department and the organ advisory committees worked on the improvement of the allocation of donor organs to patients on the waiting list. To support the work of the allocation development department, a collaboration with the University of Eindhoven, in the field of Artificial Intelligence, was established in 2019.

The collaboration with the University of Eindhoven aims for development of allocation to improve the quality of transplantation outcomes. By investing in new allocation methods and techniques Eurotransplant intends to improve the efficiency of allocation and information systems. The allocation of organs is an information-intensive process. Therefore Eurotransplant continuously develops and maintains effective and efficient information systems that are required to support this process. Artificial Intelligence assists with simulation of alternative allocation. To create these simulations all available information is used: results from internal analyses of the Eurotransplant database and Eurotransplant Registry, data provided by the patients, the transplant centers and via exchange with other registries as well as results from international research. The goal of using this information is developing recommendations with the best possible scientific basis for further adaptation of allocation rules. Simulations can provide answers to critical questions such as: which organs from which donors are most suitable for transplantation? And to which patient should a specific organ be allocated? Which patient should gets priority over another patient on the waiting list? Off course medical and ethical standards are adhered while seeking for answers to create optimal matches between donor organs and patients.

In 2019 the Eurotransplant organ advisory committees played an important role in development of allocations rules. The committees prepared and advised on the definition and implementation of new allocation rules. Below an overview of the work per specific organ advisory committee:

Thoracic Advisory Committee (ETHAC)
Revision of the heart HU criteria (Box A, B and C) have been finalized. In December 2019 the Box A criteria were implemented. Scheduled is that Box B and C will be implemented in the course of 2020. In connection with the introduction of the Box A criteria the validation of the intervals have been adapted.

Liver and Intestine Advisory Committee (ELIAC)
The discussion on the HU criteria was completed in 2019. Recommendations have been drafted and sent to the competent authorities and are awaiting approval. The discussion on the paediatric age from 16 years to 18 years continues in 2020. The composition of the liver auditor guidelines has been completed.

A model using Artificial Intelligence technique is being developed for rescue allocation. The model aims for the best survival of the patient after transplantation.

Pancreas Advisory Committee (EPAC)
Revision of the pancreas SU criteria have been finalized. A Recommendation has been drafted and was send to the competent authorities and are awaiting approval. Discussed and agreed was to replace the P-PASS (Preprocurement Pancreas Allocation Suitability Score) by a (modified) Pancreas Donor Risk Index. The replacement is scheduled for 2020.

Kidney Advisory Committee (ETKAC)
In 2019 the country balance used for international exchange has been modified. Age categories have been implemented in balancing the organ allocation. This adaption of the balance is part of the intended and proposed adaption of the kidney allocation were the committee is working on.

Tissue Type Advisory Committee (TTAC)
The conversion from PRA (Panel reactive Antibodies) to Virtual-PRA started in 2019. The ultimate goal is that within 2 to 4 years not only Virtual PRA but also the Virtual Cross match is introduced and will be the standard in allocation in Eurotransplant.

2020
Aim for 2020 is to further explore the possibilities of introduction of machine learning techniques in allocation model development. To support this, the cooperation established in 2019 with the University of Eindhoven, will be continued and strengthened. In 2020 a dedicated researcher will start exploring this field in close cooperation with the allocation development department.

Data Services

In 2019 the Data Warehouse (DWH), Data Management and Registry departments were combined to form one Data Services Department. The Data Services department aims to gather data from different sources within Eurotransplant and from collaborative (Inter)national Registries. The gathered data is made available for evaluation and research. During 2019 the Data Service department re-established existing services and evaluated exchanges with International registries against the GDPR (General Data Protection Regulation). The department focused on continuation of critical data management activities, realizing data exchanges for the National German Transplant Registry (NDTR) and creating a new policy and vision for 2020.

Daily data management activities
In January 2019 our dear colleague and data manager Erwin de Vries passed away suddenly. His untimely death left a hole in our hearts and had a tremendous impact on the continuation of the daily data management activities. In the subsequent months only the most critical data management activities were executed. In the meantime, the HR department recruited new employees. After a few months a new team of 2 data managers and 2 DWH specialists was established. During this period most efforts were aimed at reducing the backlog of data requests for studies, in order to facilitate important research and evaluations carried out based on the registries data.

GDPR
With the introduction of the GDPR rules, data delivery from Eurotransplant to (inter)national registries had to be re-evaluated to comply with the new rules. For some specific exchanges explicit consent is needed to be able to supply long term follow-up on patient identifiable data. To support this considerable effort has been undertaken to consent new patients and evaluate and process existing consent forms from transplanted patients. Patients on the waiting list were asked to approve (to 'consent') delivery of their data to Eurotransplant and to express their consent for the use of their data for other purposes like e.g. scientific research or exchange of their data with partners.

NDTR and EDITH
The Data Services Department put a lot of effort in realizing data exchanges for the National German Transplant Registry (NDTR). This registry combines data from waiting list, transplants (Eurotransplant), donors (DSO) and quality (IQTIG) in one large National registry. The NDTR was established by the German Federal Government under the National Organ Transplant Act, to ensure greater patient safety, transparency and quality in transplantation medicine. The European project EDITH (combined European registry; see edith-project.eu) tries to establish a pan European registry combining data from national registries. The data services department is actively involved in realizing work package 6 "Transplant Recipient Registry". Work package 6 aims to establish a registry for transplanted kidney recipients.

Both the project phase of the NDTR and EDITH should be concluded in 2020. By realizing exchange of data with international registries Eurotransplant facilitates and supports scientific research.

Future vision
At the end of 2019 a new vision for the Eurotransplant Registry was developed to create a much more efficient data delivery workflow and increase data quality. Eurotransplant aims for a better support of evaluation and

research activities. Internal for allocation and allocation development activities and external for Eurotransplant Transplant centers, National Competent Authorities and researchers. The current Eurotransplant Registry consists of all data gathered for evaluation of allocation, waiting list and donor reporting, as well as for research. Currently data are made available for these purposes in the Eurotransplant Statistics Library or through custom developed database extracts from different sources. Creating customized extracts is a time-consuming process that causes data delivery to be a constraint for research. The Data Services department aims to reduce workload and remove the hurdles for data delivery by improving our registry's data warehouse structure in 2020, creating more efficient reporting in 2021 and introducing self-service reporting in 2022. All these activities have to comply with the GDPR. Therefore, in 2020 a new policy for data delivery will be developed to support the new vision and the related activities in the coming years.

Financial management

The Eurotransplant budget proposal for 2019 was presented to the Financing authorities in November 2018. The budgeted amounts for organizational strengthening, renewal of ENIS (ENISnext) and relocation of the Eurotransplant office raised questions. It was decided to schedule a second meeting on February 28, 2019 where Eurotransplant presented an adapted budget proposal and additional and more detailed information regarding these projects. The questions raised in the first meeting, were sufficiently answered and the budget was approved by the Financing authorities.

The financial situation in 2019 was better than foreseen in the budget proposal. This was mainly due to lower costs. Main reasons for the lower costs were the high level of vacancies and the delay of the introduction of the collective labor agreement (December instead of April) and with that the delay of overall wage increases.

It was decided to use part of the CORE reserve to reduce the increase of the registration tariffs. In the second meeting with the Financing authorities, it was decided that the 2019 registration tariffs would be valid from April 1, 2019. Two substantive projects were reflected in the overall budget; 1. relocation of the Eurotransplant office in Leiden from Plesmanlaan to Haagse Schouwweg and 2. IT project - Oracle forms replacement (later in 2019 called ENISnext).

In 2019 the discussion on the future Governance was concluded. Organizationally, the new way of governing will affect practices and procedures. This will also apply to the financial procedures and the Planning and Control of the organization. On November 6, 2019, the budget proposal for 2020 was presented to the Financing authorities and approved without adaptations. For 2020, budget is reserved for continuation of project ENISnext, several smaller IT projects and continuation of the regular Eurotransplant processes.

Infrastructure

The Infrastructure department focused in 2019 on two large projects; 1. relocation of the Eurotransplant Leiden office and 2. Relocation of the on-premises data centers. Furthermore, the team assisted technically with various IT projects.

1. Relocation office
The team organized all necessary IT-related facilities in the new Eurotransplant office such as installation of a redundant network, an emergency power generator and internet connections. All outdated hardware was renewed, all workstations were upgraded to Windows 10 and all hardware was installed in the new office. Setting up all necessary security measures like camera's, alarm systems and door access control systems, was also a responsibility of the Infrastructure department. Facilities in the new meeting rooms were optimized by setting-up wireless presentation systems and installing facilities and systems for video conferencing. To further improve telephone connections in the new office, Eurotransplant changed from standard telephony to a telephone connection over the internet. This resulted in a change of the Eurotransplant telephone numbers.

2. Relocation data centers
Efforts were made to realize a smooth relocation of the data center from the office at the Plesmanlaan 100 to 2 external dedicated data centers in Amsterdam. What came along was the renewal of the Firewall, network, changes in hosting of applications and storage. In 2020 the Infrastructure department will continue activities which focus on firewall replacement and security. Replacement is necessary to meet future (Cloud) features and functionalities.
In 2019 the infrastructure department also focused on outsourcing of services to external service providers.
In 2020 Eurotransplant will continue to outsource more internal services to Cloud service providers with expertise. Therefore, in 2020 a contract service delivery manager will be recruited to manage these transitions. One of the reasons for outsourcing services is less maintenance and less management, so that the Infrastructure department can focus more on innovation and improvement of internal professionalism, collaboration and Cloud management.

Information services

2019 has been a transitional year for Eurotransplant IT. Structural improvements to the IT landscape and technical improvements to keep the Eurotransplant systems run smoothly have been a major focus throughout the year. Besides that, due to government policies, necessary recommendations have been implemented. Projects focussing on implementing improvements which were started or continued in 2019 were 1. ENISnext and 2. Authorization Structure.

1. ENISnext
In May 2019 the project to replace the Oracle Forms application ENIS was started because of the deprecation of Oracle Forms. In December 2019 Eurotransplant published the first release of the new application, so called 'ENISnext', for kidney-only centers. It was decided to start with a pilot period in one center (Hannoversch Münden). After a successful pilot, this pilot center has been using the software since. Several other transplant centers followed by using ENISnext in their daily operations.

2. Authorization Structure
In 2019 the Information services department continued the work for making implementation of the Identity Self Service-application in the Eurotransplant countries possible. The department continued contacting transplant centers to update authorization for existing accounts and deleting inactive accounts. This year the transplant centers in Belgium, Luxembourg, Slovenia, Hungary, Croatia and Austria were successfully implemented. Authorization officers in these transplant centers are managing access rights of their users to Eurotransplant information systems via the application.

Other activities in 2019
A lot of effort was put into making Eurotransplant systems GDPR compliant. All systems have been reviewed and necessary changes, such as patient consent, have been implemented.
Technical improvements that have been implemented are improved error handling in all the matching software. Implementing performance improvements to parts of the system, such as the 'monitor jobs screen' were also necessary and have been completed successfully.

Besides compliancy and technical improvements, the information services department focused on implementing functional changes. Among the large functional changes are the implementation of MARS therapy in the MELD & ENIS applications, a change to the way kidney balances are calculated and several changes to the TCP application.

2020
In 2020 the functionality of ENISnext will continue to grow, replacing ENIS step by step. Authorization Structure will finish by offering Self-Service Identity Management to transplant centers in Germany and the Netherlands. To stay compliant with Oracle's latest security updates many applications will be upgraded and moved to new servers. Finally, the pancreas matching software will be redeveloped and moved to a new platform.

Communications department

Eurotransplant is supported by a communications department (COM) that has an advisory and supporting role in external and internal communications. COM is responsible for up-to-date information on the websites, distribution of (digital) news updates and newsletters, providing information about projects and innovation in working procedures and software applications as well as (social) media management and organization of congresses and meetings. In 2019 COM focused on renewal of the Eurotransplant public website, which will be launched in 2020. Preparations on design and content creation of the public website were realized. The renewal and adjustment of the Eurotransplant member site, the ETRL website and the Eurotransplant vacancy website are on the agenda for 2020.

Projects involving COM
Projects and innovations in working procedures and software applications in which COM supported in 2019 were– for example - the implementation of:
1. Secure Communication (using the ZIVVER system) and 2. Authorization Structure. COM advised and supported in providing consistent, adequate and timely communications.

1. Secure Communication
For the implementation of Secure Communication (ZIVVER) COM advised a gradual implementation in the different work processes. After a successful pilot, COM realized timely communications on further implementation in the Eurotransplant work processes. Communication focused on emphasizing the importance of professionalizing exchange of personal data and confidential information, in compliance with legal requirements, between all cooperating partners and Eurotransplant. During the various phases, COM supported in promoting the use of ZIVVER.

2. Authorization Structure
COM was closely involved in the project Authorization Structure which aims to facilitate transplant centers in managing access rights of their users to Eurotransplant

information systems. A project that is of high importance to secure the confidentiality of patient data. COM supported the project team in communications on the implementation of the Identity Self Service-application in the Eurotransplant countries.

Other successes in 2019
COM kept the Eurotransplant Community and staff well informed on the consequences and progress of the relocation of the Eurotransplant office in Leiden from Plesmanlaan to Haagse Schouwweg. Focus on social media management resulted in a significant increase of followers on the Eurotransplant social media channels such as LinkedIn, Vimeo and Twitter.

COM was closely involved in creating a medical-scientific program for the Eurotransplant Winter Meeting on January 24-25, 2019 in Alpbach (Austria) and the Annual meeting that took place on October 10 and 11, 2019 in Sassenheim (The Netherlands). The Winter Meeting provided excellent facilities for interactive discussions and exchanging ideas and was attended by more than 110 participants from Eurotransplant member countries as well as guest speakers from Spain, Russia and the United Kingdom. The Annual Meeting 2019 was well attended by more than 300 participants and its program was accredited by the European Accreditation Council for Continuing Medical Education (EACCME®) with 8 European CME credits (ECMEC®s). For both meetings COM was e.g. responsible for providing information on the website and congress app, promotion of the event, recruiting sponsors, accreditation and logistics. The content and organization of the Annual meeting was assessed excellent- good by 94% of the respondents who filled in an online survey following the meeting.

2020
In 2020, COM will take on an even more advisory role in the various projects. A communication section has been added in the project plans format. In this way, the necessary communication is already being considered at the beginning of projects; message, target group, means of communication. We also focus on active, internal communication with a monthly 'Eurotransplant News Update' so that Eurotransplant employees are more aware of each other's projects.
In addition to internal communication, COM will also review the strategy memorandum of Eurotransplant in 2020 and reformulate it where necessary. The part 'Stakeholder management' will be further elaborated in consultation with the Board of Management. This may already result in active Public Relations and Public Affairs activities in 2020.

Human Resources department

The Human Resources department (HR) takes care of the administrative handling of all personnel and salary changes and absenteeism. In addition, HR supports managers in recruitment and management of long-term absenteeism. HR is also responsible for the development and adjustment of personnel policies, drafting of job descriptions and handling HR related issues. HR consist of two staff members: one Manager HR and one HR Officer. In 2019 HR focused on recruiting, developing new policies (related to the relocation of the Eurotransplant office), and drafting job descriptions.

Recruitment has become challenging for Eurotransplant these days. The unemployment rate in the Netherlands is at the lowest level in EU and the vacancy rate the highest. This tight labor market is even more challenging for HR as the jobs within Eurotransplant require specialized skills and knowledge, which makes it a huge challenge to find suitable candidates. Recruitment is a time-consuming activity which includes f.e. writing recruitment texts, posting vacancies, sending invitations and rejections, conducting job interviews and terms of employment interviews, drawing up employment contracts and taking care of the administrative handling of the hiring. As the figures in Chapter 8 "Eurotransplant Personnel related statistics" show, Eurotransplant succeeded in recruiting 27 new employees. HR recruited most new employees for Allocation Services (4), IT Infrastructure (3) and the IT Development department (3).

The relocation of the Eurotransplant office in Leiden results in a better work environment for all employees. Conditions improved such as a better air treatment system, a modern and light interior, positioning of departments and height adjustable standing desks for all employees. HR worked on a new mobility policy. This policy includes clear conditions for travelling by car and by public transportation. The view of corporate social responsibility resulted in stimulating all employees to travel by public transport, for which Eurotransplant covers all costs.

Furthermore, HR worked on updating many job descriptions. HR has worked with managers and employees to adjust, complete and draw up new job descriptions.

Connection with other departments
HR relates to all other departments. HR supports departments, among other things, with the inflow, throughflow and outflow of employees. HR works together with the Financial and Administration Department, the Management Team and the Works Council.

2020
Recruitment is a constant activity. In 2020 HR will focus on the continuation of recruiting an IT Development manager, as the recruitment in 2019 was unsuccessful.
In 2020 HR will look for measures to reduce employee turnover and focus more on sustainable employability. Furthermore, the new mobility policy will be evaluated to see what can be improved. In addition, HR will focus on adjusting and renewal of other personnel policies and continuing to completely digitize the personnel administration. HR aims to be ready with updating all job descriptions in 2020.

3.5 Quality Assurance & Safety

In May 2019 a new Quality Assurance Officer was appointed and the Quality Management System (QMS) further focused on the primary process of the allocation. The QMS works according to the Plan-Do-Check-Act-cycle (PDCA cycle). This four-step management method helps formulating, executing and evaluating policies and measures. On which new basic principles and measures are formulated. Input for the QMS are reported incidents, complaints, internal and external audits results, assessed risks and the output of the Information Security Management System (ISMS). ISMS that is part of the management system which, based on assessment of operating risks, serves to establish, implement, execute, check, assess, maintain and improve information security. In September 2019 a Security Officer was appointed to guarantee the focus on information security. A summary of the results from incidents, complaints, audit results, assessed risks and the output of the ISMS is presented below.

Incidents

Eurotransplant has an open culture in which reporting of incidents is stimulated in order to identify possible risks in work processes and highlight opportunities for improvement. An incident is a deviation of a standard process as described in the QMS. The Eurotransplant quality registration system - iProva - is the basis for registering and analyzing incidents. All Eurotransplant employees have access to this system. Incidents can occur in running donor procedures or in the follow-up of a procedure. Some incidents are also discovered via the weekly quality control in which 15% of previous week's donor procedures are once again completely checked from the beginning of the process until the end.

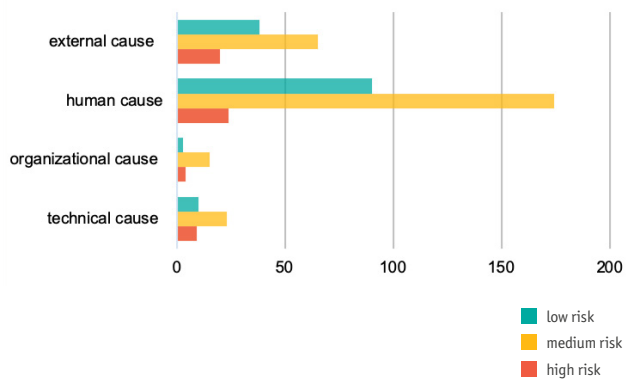
Reported near-incidents and incidents

Year	2019	2018	2017	2016	2015	2014
Total	475	648	510	427	382	424

The total number of reported incidents in 2019 decreased compared to 2018. A root cause analysis is performed for all incidents in the primary processes of Eurotransplant. This analysis is an approach for identifying the underlying causes of an incident so that the most effective solutions can be identified and implemented. Technical causes were investigated in 2018 and measurements were taken to prevent these incidents from occurring again. This partially explains the lower number of reported incidents in 2019. The figure 'Incidents 2019' shows all incidents that have been registered in 2019 sorted by root cause accompanied by their risk impact (low/medium/high).

In 2020 further analyses will take place on how to reduce the incidents caused by human errors.

Incidents 2019



Complaints

In 2019 a total of 20 complaints were registered at the Eurotransplant office. This number is slightly lower than in 2018 and reflects the trend of the previous years. All complaints were investigated and feedback was given to the reporter of the complaint and if necessary, reported to the national competent authorities. Eurotransplant handled 11 of these complaints as a mediator between donor centers and recipient centers and the other 9 complaints concerned dissatisfaction with the services of Eurotransplant and were input for improvements.

Reported complaints

Year	2019	2018	2017	2016	2015	2014
Total	20	23	20	17	28	36

Internal audits

In 2019, the audits took place according to the long-term audit plan. The internal audits took place according to a process- and risk-oriented methodology. All findings were reported and registered for follow-up activities.

Audits by third parties

In November 2019, Bureau Veritas assessed the QMS according to the ISO-9001:2015 standard. The ISO-9001:2015 is the international standard for quality management. Eurotransplant remains certified and once again, the auditor of Bureau Veritas complimented the Eurotransplant employees on their high level of commitment and professionalism.

Risk analyses

After the introduction of risk analysis in 2018 to comply with the new ISO-9001:2015 standard, risk analyses are progressively becoming part of the allocation processes. In 2019 risk analysis are set as a mandatory aspect of every request to start a new project. A risk to the QMS for example is the current technical environment of the quality manual, therefore a project aiming at the renewal of the quality manual has been started in 2019.

Information Security Management System

In 2019 important steps have been taken to provide a sustainable and secure way of working within Eurotransplant. In December 2019 a baseline measurement of the Information Security Management System (ISMS) according to the ISO-27001 standard has been performed. The ISO- 27001 is the international standard that describes best practice for an ISMS. The focus for the ISO-27001 implementation is to structure the current work processes in ISO-27001-compliant policies and regulations and to guarantee the continuous focus on information security. Eurotransplant scored a 61% compliancy in December 2019 and aims for a 100% compliancy rate by the end of 2020.

The goal for 2020 is to certify the ISMS according to the ISO-27001 standard and to fully integrate the ISMS into the existing QMS. Consequently risk-analyses and quality-awareness are increasingly becoming part of the daily processes within Eurotransplant.

4 Histocompatibility Testing

"The combined efforts of all the participants in organ donation and transplantation can result in a brand-new lease on life for a patient."

Histocompatibility Testing

Yvonne Zoet, Marian Witvliet, Marissa van der Linden-van Oevelen, Sebastiaan Heidt, Frans Claas Eurotransplant Reference Laboratory, Department of Immunohematology and Blood Transfusion, Leiden University Medical Center, Leiden, the Netherlands

4.1 Introduction

An ongoing task of the Eurotransplant Reference Laboratory (ETRL) is the maintenance and improvement of high quality HLA typing, screening for transplant relevant antibodies and crossmatching by Eurotransplant (ET) affiliated Tissue Typing Centers (TTC). This task is performed by means of organizing External Proficiency Testing (EPT) exercises, as well as collecting data on positive donor center crossmatches. Furthermore, the ETRL initiates studies and promotes discussions on possible new recommendations with the help of the Tissue Typing Advisory Committee (TTAC), and through discussions at the annual Tissue Typers meeting and the extramural meetings. In addition, the last 30 years, the ETRL has addressed the problem of highly sensitized patients by running the Acceptable Mismatch (AM) program within Eurotransplant, and by promoting the Acceptable Mismatch principle outside the Eurotransplant region.

The ETRL supports the affiliated TTC, as well as TTC from emerging countries. The ETRL is involved in the discussion on modification of the Eurotransplant kidney allocation system (ETKAS) and finally, the ETRL provides 24 hours a day, 7 days a week duty for all transplantation related immunological aspects for patients within Eurotransplant, including those in the AM program.

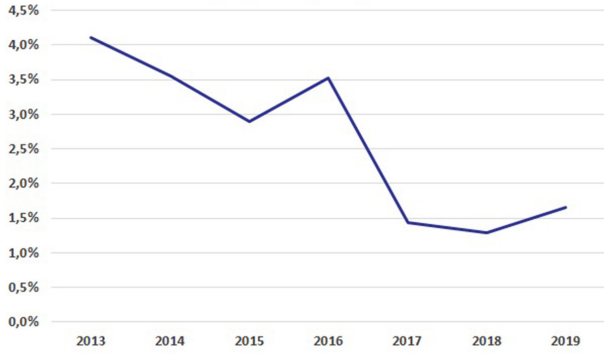
4.2 Eurotransplant External Proficiency Testing Schemes

EPT exercises are performed with the aim to determine the performance of the individual TTC. The EPT results of 2019 are reported below.

4.2.1 External Proficiency Testing on HLA typing

Each participating laboratory received 12 blood samples for HLA typing and was asked to report the results of the HLA-A, -B, -C, -DR, and -DQ typing. Analysis of the results of the HLA typing EPT is consensus based (75% consensus). In case of a lack of consensus, the reference typing as determined by the ETRL will be considered correct, in line with the latest version of the EFI EPT standards for providers (efi-web.org). The participants had to report their results on the basis of matching determinants, a translation of molecular typing results into serological equivalents, which are used in the Eurotransplant matching algorithm. Most participants used both cytotoxicity and molecular typing (33/63) for HLA class I. For Class II all participants used molecular typing and incidentally cytotoxicity (5/63). The TTC use the results of the serological typing mainly as an indicator the degree of expression of the HLA antigens on the cell surface, in order to facilitate the evaluation of the crossmatches. Amongst the total of 788 typing results reported, 5 results for typing HLA-A, -B, -C, -DR, -DQ were incorrect (0.6%). Discrepancy rate including Bw4/Bw6 and DRB3/4/5 discrepancies is 1.6%. Bw4 must only be assigned on basis of HLA-B antigens, and not on basis of HLA-A antigens. In figure 4.1 discrepancy rates of the past years are depicted.

Figure 4.1 - Discrepancy rates in typing 2013-2019



4.2.2 External Proficiency Testing on crossmatching

The participants of this EPT exercise were asked to perform crossmatches using peripheral blood mononuclear cells and sera provided by the ETRL. The TTC applied the local Complement Dependent Cytotoxicity (CDC) crossmatch protocols to simulate day-to-day practice, using a separate condition of dithiothreitol (DTT) treatment to disintegrate IgM antibodies. The TTC must use either unseparated peripheral blood cells or separated T cells. Next to this, the TTC had the opportunity to also perform crossmatches on separated B cells, although the reported final results must be based on unseparated and/or T cells only. The final crossmatch results had to be reported as is done for organ donor procedures (table 4.1).
In total, 12 sera had to be crossmatched by the participating laboratories.

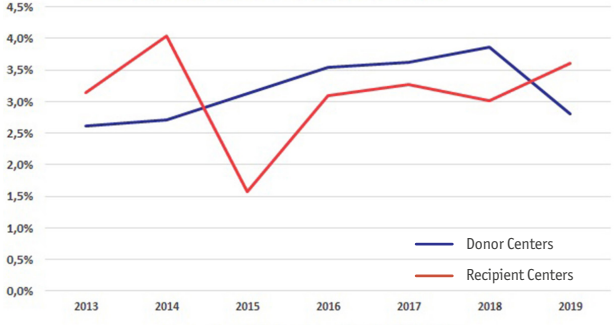
Each time, the three blood samples, which were sent for HLA typing, were also used for crossmatching with three sera. Over the whole period, 36 crossmatches were performed. There are two types of laboratories participating in this EPT, and therefore the results are reported separately. Donor centers (31) are the laboratories on duty for post-mortal organ donors, while recipient centers (34) are the laboratories performing only recipient associated immunological diagnostics. The latter group includes also the laboratories from outside Eurotransplant. The target cells and the respective results are presented in table 4.1.

Table 4.1 - Results of the EPT on crossmatching (DTT = dithiothreitol):

The number represents the percentage discrepancy rate on the basis of 75% consensus. The results are comparable to those of earlier periods. Overall discrepancy rates over the past years are shown in figure 4.2.

	Unseparated		T cells		B cells		Final results	
	(-)DTT	(+)DTT	(-)DTT	(+)DTT	(-)DTT	(+)DTT	(-)DTT	(+)DTT
Donor	2,1%	2,9%	1,7%	1,0%	5,1%	4,0%	2,3%	2,9%
Recipient	2.7%	4,0%	2,8%	3,5%	3,4%	3,6%	3,3%	4,7%

Figure 4.2 - Discrepancy rates for crossmatching 2013-2019



4.2.3 External Proficiency Testing on screening

In 2019, the scheme of the EPT exercise on screening for HLA-specific antibodies comprised of one shipment containing 12 sera. The HLA typing of the serum donor was reported to the participants beforehand. For screening detection of HLA-specific antibodies, the ETRL received results from 68 participants. Discrepancy rates are depicted in table 4.2.

Table 4.2 - Results of the EPT on Screening Detection

Discrepancy rates per technique, based on 75% consensus. Because of low number of participants (<10), no discrepancy rates for ELISA are reported.

Luminex		ELISA		CDC%PRA		Final Results	
Class I	Class II	Class I	Class II	%(-)DTT	%(+)DTT	Class I	Class II
1,8%	3,0%	-	-	5,2%	5,7%	1,8%	3,2%

For screening identification of HLA antibodies, the ETRL received results from:

- 59 participants using the CDC assay
- 67 participants using the Luminex based Solid Phase Assay Single Antigen (SPA- SA) testing
- 4 participants using alternative Solid Phase Assays based on Luminex or ELISA. These results could not be analyzed due to the low number of participants.
- 6 participants using a Solid Phase Single Antigen C1Q or C3D assay. These results could not be analyzed due to the low number of participants.

The analysis of the results is based on 75% consensus for positive results in CDC, 95% consensus for positive results in SPA-SA and the 95% consensus (both CDC and SPA-SA) for negative results. If a minimum of 75% (CDC) or 95% (SPA-SA) of participants report that a specificity is positive then this specificity is marked positive. If 95% of the participants report a specificity as negative then this specificity is regarded as not present in the respective serum.

The analyses of this EPT exercise are presented below. The analysis was performed as follows:

$$\text{Concordant \%} = \frac{\text{total number of concordant (consensus) specificities}}{\text{total number of scored specificities from all centers}}$$

$$\text{False negative \%} = \frac{\text{total number of false negative specificities}}{\text{total number of scored specificities from all centers}}$$

$$\text{False positive \%} = \frac{\text{total number of false positive specificities}}{\text{total number of scored specificities from all centers}}$$

Table 4.3 - Results of the EPT on screening identification 2019

Method	Participants (N)	Concordant %	False negative %	False positive %
CDC	59	39,7	5,6	7,2
SPA-SA	67	74,1	0,42	0,76

The SPA-SA resulted in a significantly higher number of recognized HLA specificities per tested serum compared to CDC. In total, 311 consensus specificities were found in SPA-SA vs. 17 consensus specificities in CDC.

It is important to note that not all antibodies detected by solid phase assays only are relevant for transplantation. Percentages of false negatives and false positives for CDC and SPA SA over the past years are shown in figure 4.3 and figure 4.4.

Figure 4.3 - Percentages false positives and false negatives for CDC 2013-2019 (Screening Identification CDC)

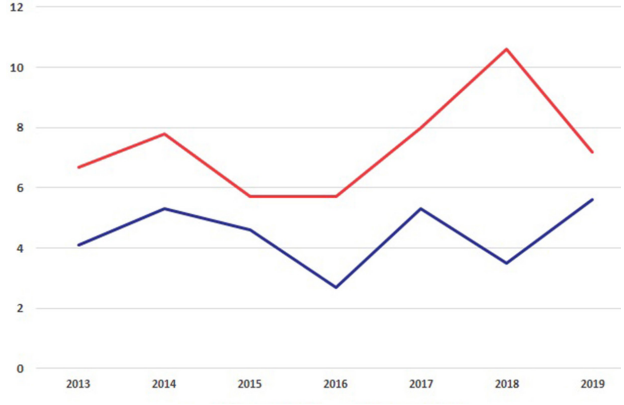
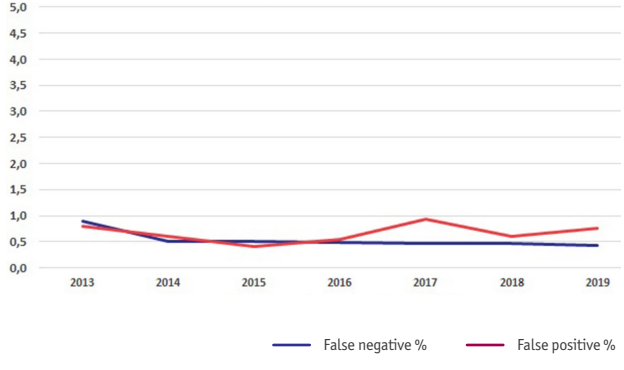


Figure 4.4 - Percentages false positives and false negatives for SPA SA 2013-2019 (Screening Identification SPA SA)



4.2.4 Patient-based cases

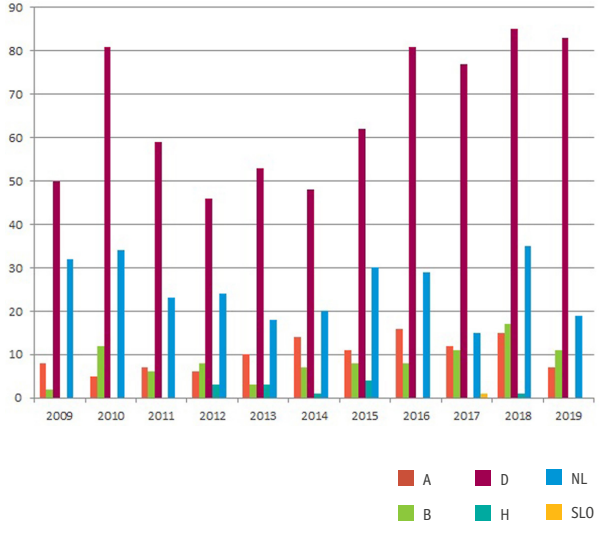
In 2019, three patient-based cases were sent to the participants, who were required to provide an advice on whether a transplant should go ahead based on the immunological data provided. All Eurotransplant affiliated centers participated in this mandatory exercise. Results of this EPT were discussed during the annual extramural meeting in Groningen.

4.3 The Acceptable Mismatch Program

The Acceptable Mismatch (AM) Program organized by the ETRL is an efficient tool to enhance transplantation of highly sensitized kidney patients. The AM program is open for all highly sensitized patients waiting a kidney transplant within Eurotransplant, pending approval by the ETRL based on predefined eligibility criteria. Information on participation can be obtained directly from the ETRL (email: etrl.am@eurotransplant.org), the Eurotransplant Medical Administration, or from the ETRL website (etrl.eurotransplant.org).

Since the start of the program in 1989, more than 2700 patients participated and more than 1600 patients were transplanted with excellent transplant survival and low rejection rates, comparable to non-immunized ETKAS transplants. In 2019, 212 applications for the AM program were received by the ETRL, of which 108 met the criteria for inclusion. On the 1st of January 2020, 17 applications were still waiting to be analyzed. In total, 120 AM patients were transplanted with a crossmatch negative kidney through the AM program (figure 4.5).

Figure 4.5 Number of patients transplanted via the AM program (A: Austria, B: Belgium, D: Germany, H: Hungary, NL: the Netherlands, SLO: Slovenia)



4.4 Other activities

The ETRL website

The website of the ETRL (etrl.eurotransplant.org) is available for all laboratories working in the field of transplantation immunology and histocompatibility. Besides information on the duties of the ETRL, the participants of the EPT can find information on the EPT schemes. For the AM program, additional information and forms for application can be found on the site. Further information of future meetings within Eurotransplant as well as reports of these meetings can be found. In addition, the following tools can be found on the public part of the ETRL EPT website (etrl.org):

- Virtual PRA calculator, which is based on the ETRL reference database 3.0, containing HLA typing results of organ donors procured within ET between 2012 and 2018 (N=10.000).
- Donor frequency calculators for ABO identical, ABO compatible ABO ET compatible, and the Acceptable Mismatch Program.
- Haplotype generator.

The EPT part of the website is only accessible for EPT participants through a password.

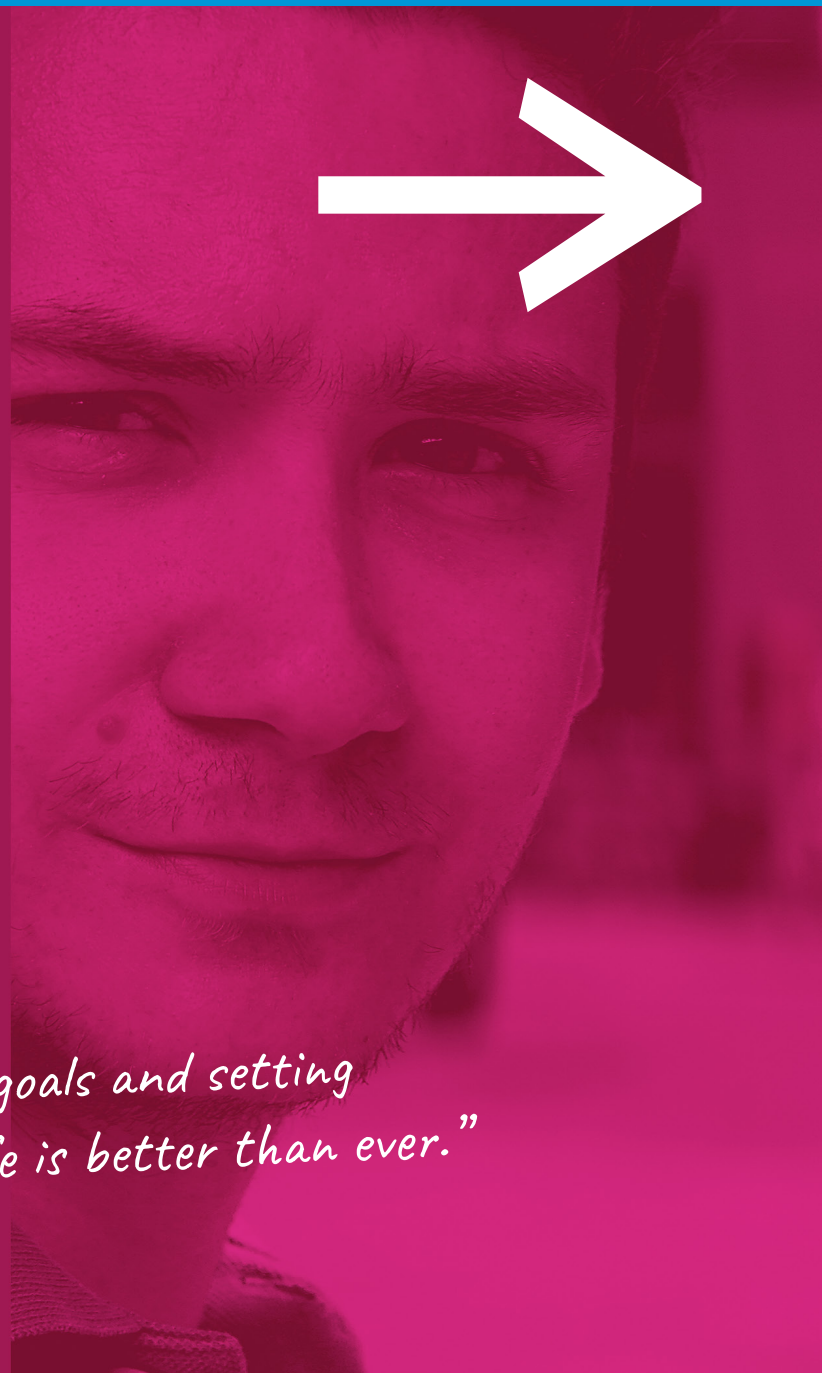
Extra Mural Meeting Groningen

In 2019 the extra mural meeting was organized in Groningen, the Netherlands for the Eurotransplant tissue typers community. Yvonne Zoet presented an overview of the EPT results of 2018 and an overview of results from the positive crossmatch inventory. Sebastiaan Heidt discussed the EPT Patient Based Cases and Frans Claas showed the latest news from the TTAC. This was followed by a goodbye presentation from Marian Witvliet, who left the ETRL in May 2019 to enjoy her retirement.
In the afternoon, Sebastiaan Heidt spoke about the introduction of virtual PRA and the road towards virtual crossmatching within Eurotransplant. The last presentation was a scientific lecture about personalized medicine in transplantation presented by Jan Stephan Sanders from Groningen. All presentations are available on etrl.eurotransplant.org/extramural-meetings/

Annual Tissue Typers Meeting

The Tissue Typers Session 2019 during the Eurotransplant Annual Meeting in Sassenheim was very well attended.
A variety of subjects were discussed, including the new positive crossmatch inventory by Yvonne Zoet, the pathway towards virtual donor crossmatching by Sebastiaan Heidt, possibilities for extended typing to facilitate future virtual crossmatching, by Gottfried Fischer and the procedure of virtual crossmatching that is currently already used in Scotland by David Turner.
All presentations provoked lively discussions among the attendants. All presentations are available on the Eurotransplant member website.

5 Reporting of non-resident transplants in Eurotransplant



"I am still achieving my goals and setting new ones, my life is better than ever."

Reporting of non-resident transplants in Eurotransplant

Eurotransplant signed the Declaration of Istanbul on organ trafficking and transplant tourism in 2008. In doing so Eurotransplant made a clear statement that it expects that Eurotransplant transplant centers shall abstain from any activity involving transplant tourism and organ trafficking.

In 2012, the Board adapted the non-resident policy, wherein it is stated:

It is neither the legal role nor the responsibility of Eurotransplant to make rules about non-residents. In order to achieve the best possible transparency regarding transplantation activities concerning non-residents, Eurotransplant will report on an annual basis per transplant center all non-resident transplants according to national legislation on residency status in its Annual Report.

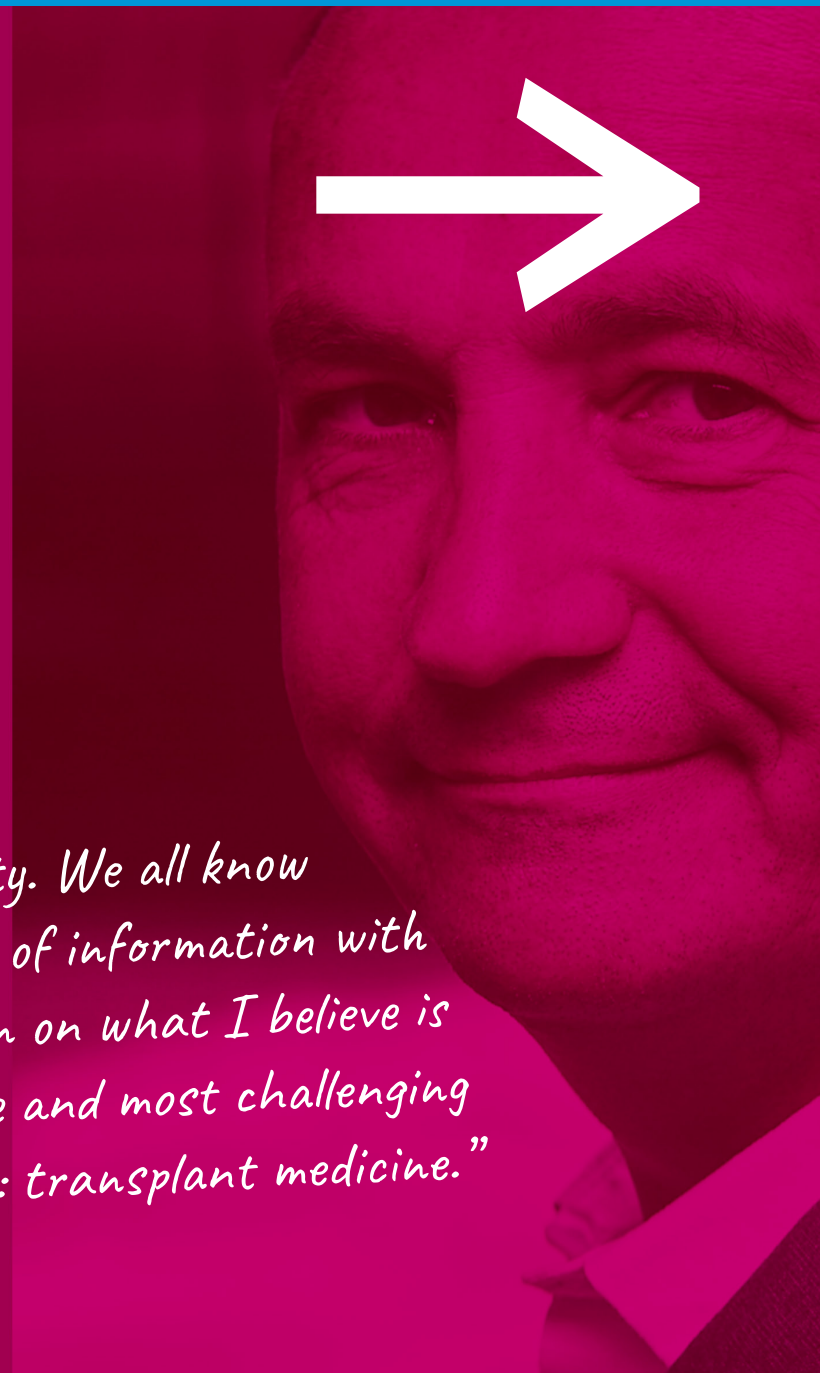
These reports will be based on the data the centers provide to Eurotransplant. Eurotransplant recognizes that relying on self-reporting by transplant centers has its limitations but given the limited legal role and responsibility of Eurotransplant it is felt that this approach is appropriate. It is also in line with the self-reporting of other demographic patient data by transplant centers to Eurotransplant.

Tabel - Non-resident transplants (deceased donor) in 2019

Country	Center	All transplants	Non-Resident transplants
Austria	AIB - Innsbruck	159	1
Austria	AWG - Vienna	318	8
Belgium	BLA - Brussels	154	1
Croatia	CZP - Zagreb	6	1
Germany	GBA - Bad Oeynhausen	99	1
Germany	GFM - Frankfurt	48	1
Germany	GHB - Heidelberg	164	1
Germany	GHG - Hamburg	135	1
Germany	GMN - Münster	145	2
Germany	GRB - Regensburg	78	1
		Total:	**18**

Disclaimer:
Non-residents are transplant recipients from countries outside the Eurotransplant region. The residency status is specified and verified by the transplant center and is not verified by Eurotransplant.

6 Transplant programs and their delegates in 2019



"It's a very special community. We all know each other and share lots of information with each other – information on what I believe is the highest attainable and most challenging medical discipline: transplant medicine."

Transplant programs and their delegates in 2019

According to the Articles of Association of Stichting Eurotransplant International Foundation (available on the Eurotransplant website: eurotransplant.org/about-eurotransplant/policies/), each program director has the right to delegate up to two natural persons in the Assembly for each program in which it performed transplantations during the preceding year. Programs are defined as transplantation areas: kidney, heart, lungs, liver, pancreas or Tissue Typing, which have the approval of the competent and relevant authorities. The number of delegates that may be assigned per program depends on the number of votes: programs with one vote can send one delegate, programs with two votes may either send one delegate having two votes or two delegates having one vote each.

On each reference date (March 31), in accordance with the previously mentioned, the number of persons delegated by a center in the Assembly is re-determined. If no name is indicated, then no delegate was appointed by transplant/tissue typing program. During each year, delegates may change based on information received from the head of the transplant program. The delegates mentioned in the following listings were listed as delegate in our system on **October 1, 2019**. Please find an up to date list of delegates at the Organization page on the Eurotransplant website: eurotransplant.org/about-eurotransplant/organization/

Renal programs

Austria		*Delegates*
GA	Medizinische Universitätsklinik, Graz	Prof. Dr. A. Rosenkranz
IB	Chirurgische Universitätsklinik, Innsbruck	Dr. A Weissenbacher / Dr. S. Scheidl
OE	Krankenhaus der Elisabethinen, Linz	*No delegate appointed*
WD	Universitätsklinik für Chirurgie, Wien (pediatric)	*No delegate appointed*
WG	Universitätsklinik für Chirurgie, Wien	Prof. Dr. G. Berlakovich / Prof. Dr. R. Oberbauer

Belgium		
AN	Universitair Ziekenhuis Antwerpen, Edegem	Prof. Dr. D. Ysebaert
BJ	Universitair Ziekenhuis Brussel, Campus Jette	Prof. Dr. K.M. Wissing
BR	Université Libre de Bruxelles, Hôpital Erasme, Bruxelles	*No delegate appointed*
GE	Universitair Ziekenhuis, Gent	Dr. S. Van Laecke
LA	Cliniques Universitaire St. Luc, Bruxelles	*No delegate appointed*
LE	Universitair Ziekenhuis Gasthuisberg, Leuven (pediatric)	Dr. N. Knops
LG	Centre Hospitalier Universitaire, Liège	Dr. L. Weekers / Dr. N. Meurisse
LM	Universitair Ziekenhuis Gasthuisberg, Leuven	Prof. Dr. D. Kuypers / Prof. Dr. B. Sprangers

Croatia		
OS	University Hospital, Osijek	Dr. G. Samardžija
RI	University Clinical Hospital, Rijeka	*No delegate appointed*
ZA	University Clinical Hospital, Zagreb	*No delegate appointed*
ZM	Clinical Hospital Zagreb Merkur, Zagreb	Dr. M. Sucic / Dr. B. Maksimovic

Germany		
AK	Universitätsklinikum, Aachen	Dr. A. Mühlfeld
AU	Zentralklinikum, Augsburg	Dr. H. Weihprecht
BB	Universitätsklinikum Knappschaftskrankenhaus, Bochum	Prof. Dr. R. Viebahn / Dr. P. Schenker
BC	Charité-Campus Virchow Klinikum, Berlin	Prof. Dr. R. Öllinger / Dr. W. Schöning

continues on next page

BM	Kliniken der Freien Hansestadt, Bremen	No delegate appointed
BO	Universitätsklinikum, Bonn	Dr. B. Klein
DR	Universitätsklinikum Carl Gustav Carus, Dresden	Dr. J. Putz / Dr. C. Quick
DU	Universitätsklinikum, Düsseldorf	*No delegate appointed*
ER/ NB	Universitätsklinikum Erlangen-Nürnberg, Erlangen	Dr. H. Apel / Dr. K. Heller
ES	Universitätsklinikum, Essen	Prof. Dr. A. Kribben / Prof. Dr. U. Eisenberger
FD	Klinikum Fulda, Fulda	Prof. Dr. M. Haubitz
FM	Universitätsklinikum, Frankfurt	Prof. Dr. I. Hauser
FR	Universitätsklinikum, Freiburg	Prof. Dr. P. Pisarski / Dr. B. Jänigen
GI	Universitätsklinikum Gießen und Marburg, Gießen	Dr. H. Karakizlis
HA	Universitätsklinikum, Halle	Prof. Dr. P. Fornara / Dr. K. Weigand
HB	Universitätsklinikum, Heidelberg	Prof. Dr. C. Morath / Prof. Dr. C. Morath
HG	Universitätsklinikum Hamburg-Eppendorf, Hamburg	Prof. Dr. L. Fischer / Dr. F. Grahammer
HM	Nephrologisches Zentrum Niedersachsen, Hann. Münden	Prof. Dr. V. Kliem
HO	Klinikum der Medizinischen Hochschule, Hannover	*No delegate appointed*
HS	Universitätsklinikum des Saarlandes, Homburg/Saar	Prof. Dr. U. Sester
JE	Universitätsklinikum, Jena	*No delegate appointed*
KI	Universitätsklinikum Schleswig-Holstein, Kiel	Prof. Dr. T. Feldkamp
KK	Klinik für Kinderheilkunde der Universität Köln-Lindenthal, Köln	Prof. Dr. D. Stippel
KL	Uniklinik Köln-Lindenthal, Köln	Prof. Dr. D. Stippel / Dr. R. Wahba
KM	Krankenhaus Merheim, Köln-Merheim, Köln	Dr. A. Weidemann / Dr. W. Arns
KS	Westpfalz-Klinikum, Kaiserslautern	Dr. C. Mönch
LP	Universitätsklinikum, Leipzig	Prof. Dr. D. Seehofer
LU	Universitätsklinikum Schleswig-Holstein, Lübeck	Dr. M. Nitschke
MA	Universitätsmedizin, Mannheim	Prof. B. Krüger
MH	Klinikum rechts der Isar, München	Prof. Dr. U. Heemann / Dr. V. Assfalg
ML	Klinikum der Universität, München	Prof. Dr. M. Guba
MN	Universitätsklinikum, Münster	Prof. Dr. J. Brockmann / Prof. Dr. B. Suwelack
MR	Universitätsklinikum Gießen und Marburg, Marburg	Prof. Dr. J. Hoyer
MZ	Universitätsmedizin der Johannes-Gutenberg-Universität, Mainz	Prof. Dr. M. Koch
RB	Universitätsklinikum, Regensburg	Prof. Dr. B. Banas
RO	Universitätsklinikum, Rostock	*No delegate appointed*
ST	Katharinenhospital, Stuttgart	*No delegate appointed*
TU	Universitätsklinikum, Tübingen	Prof. Dr. S. Nadalin
WZ	Universitätsklinikum, Würzburg	Dr. A. L. Herzog

Hungary

BS	Semmelweis Medical University, Budapest	MD J. Szabó / Dr. L. Wagner
DB	Medical Center of the University, Debrecen	*No delegate appointed*
PC	Medical Faculty of the University, Pecs	*No delegate appointed*
SZ	Medical Center of the University, Szeged	*No delegate appointed*

Netherlands

AE	Emma Kinderziekenhuis, Amsterdam	Dr. A.H.M. Bouts
AV	VU Medisch Centrum, Amsterdam	Prof. Dr. F. J. van Ittersum / Dr. S.A. Nurmohamed
AW	Academisch Medisch Centrum, Amsterdam	Prof. Dr. F.J. Bemelman / Drs. K.A.M.I. van der Pant
GR	Academisch Ziekenhuis, Groningen	Dr. S.P. Berger
LB	Leids Universitair Medisch Centrum, Leiden	Prof. Dr. I.P.J. Alwayn / Dr. A.P.J. de Vries
MS	Academisch Ziekenhuis, Maastricht	Dr. M.H.L. Christiaans
NY	Universitair Medisch Centrum St. Radboud, Nijmegen	Prof. Dr. L. Hilbrands / Dr. P.P.C. Poyck
RD	Erasmus Medisch Centrum, Rotterdam	Dr. J. van de Wetering
RS	Sophia Kinderziekenhuis, Rotterdam	Dr. K. Cransberg
UT	Universitair Medisch Centrum, Utrecht	Dr. A. van Zuilen

Slovenia

LO	University Medical Center, Ljubljana	Prof. Dr. G. Mlinšek /Prof. Dr. M. Arnol

Liver programs

Austria		*Delegates*
GA	Chirurgische Universitätsklinik, Graz	Prof. Dr. P. Schemmer
IB	Chirurgische Universitätsklinik, Innsbruck	Prof. Dr. S. Schneeberger / Prof. Dr. H. Zoller
WG	Universitätsklinik für Chirurgie, Wien	Prof. Dr. G. Berlakovich / Prof. Dr. T. Soliman
Belgium		
AN	Universitair Ziekenhuis Antwerpen, Edegem	Prof. Dr. D. Ysebaert
BR	Université Libre de Bruxelles, Hôpital Erasme, Bruxelles	Dr. V. Lucidi / Prof. Dr. T. Gustot
GE	Universitair Ziekenhuis, Gent	Prof. Dr. X. Rogiers
LA	Cliniques Universitaires St. Luc, Bruxelles	Dr. E. Bonaccorsi-Riani / Dr. O. Ciccarelli
LG	Centre Hospitalier Universitaire, Liège	Prof. O. Detry / Dr. N. Meurisse
LM	Universitair Ziekenhuis Gasthuisberg, Leuven	Prof. Dr. J. Pirenne / Prof. Dr. D. Monbaliu
Croatia		
ZA	University Clinical Hospital, Zagreb	Dr. J. Zedelj
ZM	Clinical Hospital Merkur, Zagreb	Dr. B. Kocman / Dr. D. Mikulic
ZP	University Clinical Hospital, Zagreb (pediatric)	*No delegate appointed*
Germany		
AK	Universitätsklinikum, Aachen	Dr. F. Ulmer / Dr. G. Lurje
BC	Charité-Campus Virchow Klinikum, Berlin	Prof. Dr. R. Öllinger / Dr. W. Schöning
BO	Chirurgische Universitätsklinik, Bonn	Dr. S. Manekeller
ES	Universitätsklinikum, Essen	Prof. Dr. A. Paul / Prof. Dr. A. Őzcelik
FM	Universitätsklinikum, Frankfurt	Prof. Dr. A. Schnitzbauer
HB	Universitätsklinikum, Heidelberg	Prof. Dr. A. Mehrabi / Dr. Y. Kulu
HG	Universitätsklinikum Hamburg-Eppendorf, Hamburg	Prof. Dr. L. Fischer / Dr. U. Herden
HO	Klinikum der Medizinischen Hochschule, Hannover	*No delegate appointed*
HS	Universitätsklinikum des Saarlandes, Homburg/Saar	*No delegate appointed*
JE	Universitätsklinikum, Jena	*No delegate appointed*
KI	Universitätsklinikum Schleswig-Holstein, Kiel	Prof. Dr. F. Braun / Dr. A. Bernsmeier
KL	Uniklinik Köln-Lindenthal, Köln	Prof. Dr. D. Stippel
LP	Universitätsklinikum, Leipzig	Prof. Dr. D. Seehofer
MB	Klinikum Otto-von-Guericke Universität, Magdeburg	Prof. Dr. A. Perrakis
ML	Klinikum der Universität, München	Prof. Dr. M. Guba
MN	Universitätsklinikum, Münster	*No delegate appointed*
MZ	Universitätsmedizin der Johannes-Gutenberg-Universität, Mainz	*No delegate appointed*
RB	Universitätsklinikum, Regensburg	Prof. Dr. M. Scherer / PD Dr. S. Brunner
RO	Universitätsklinikum, Rostock	Prof. Dr. T.Y. Tsui
TU	Universitätsklinikum, Tübingen	Prof. Dr. S. Nadalin
WZ	Universitätsklinikum, Würzburg	*No delegate appointed*
Hungary		
BS	Semmelweis Medical University, Budapest	*No delegate appointed*
Netherlands		
GR	Academisch Ziekenhuis, Groningen	Prof. Dr. R.J. Porte / Dr. A.P. van den Berg
LB	Leids Universitair Medisch Centrum, Leiden	Prof. Dr. I.P.J. Alwayn / Prof. Dr. B. van Hoek
RD	Erasmus Medisch Centrum, Rotterdam	Dr. W.G. Polak / Dr. S. Darwish Murad
Slovenia		
LO	University Medical Center, Ljubljana	Prof. Dr. B. Trotovšek

Pancreas (Islets) programs

Austria		*Delegates*
GA	Chirurgische Universitätsklinik, Graz	Prof. Dr. A. Rosenkranz
IB	Chirurgische Universitätsklinik, Innsbruck	Dr. C. Margreiter / Prof. Dr. R. Oberhuber
WG	Universitätsklinik für Chirurgie, Wien	Prof. Dr. T. Soliman

Belgium		
BP	JDRF Center for Beta Cell Therapy, Brussel	Prof. Dr. B. Keymeulen / Prof. Dr. D. Jacobs-Tulleneers-Thevissen
BR	Université Libre de Bruxelles, Hôpital Erasme, Bruxelles	Dr. D. Mikhalski
GE	Universitair Ziekenhuis, Gent	Dr. S. van Laecke
LA	Cliniques Universitaires St. Luc, Bruxelles	*No delegate appointed*
LG	Centre Hospitalier Universitaire, Liège	Dr. L. Weekers
LM	Universitair Ziekenhuis Gasthuisberg, Leuven	Prof. Dr. P. Gillard

Croatia		
ZM	Clinical Hospital Merkur, Zagreb	*No delegate appointed*

Germany		
BB	Universitätsklinikum Knappschaftskrankenhaus, Bochum	Prof. Dr. R. Viebahn / Dr. P. Schenker
BC	Charité-Campus Virchow Klinikum, Berlin	Dr. A. Kahl / Dr. W. Schöning
DR	Universitätsklinikum Carl Gustav Carus, Dresden	*No delegate appointed*
ER/NB	Universitätsklinikum Erlangen, Erlangen	*No delegate appointed*
ES	Universitätsklinikum, Essen	Prof. Dr. A. Özcelik
FM	Universitätsklinikum, Frankfurt	Dr. M. Heise
FR	Universitätsklinikum, Freiburg	Prof. Dr. P. Pisarski
HB	Universitätsklinikum, Heidelberg	Prof. Dr. A. Mehrabi
HG	Universitätsklinikum Hamburg-Eppendorf, Hamburg	Dr. J. Li
HO	Klinikum der Medizinischen Hochschule, Hannover	*No delegate appointed*
JE	Universitätsklinikum, Jena	*No delegate appointed*
KL	Uniklinik Köln-Lindenthal, Köln	Prof. Dr. D. Stippel
KM	Krankenhaus Merheim, Köln-Merheim, Köln	Dr. A. Weidemann
KS	Westpfalz-Klinikum, Kaiserslautern	Dr. C. Mönch
MH	Klinikum rechts der Isar, München	Prof. Dr. S. Thorban
ML	Klinikum der Universität, München	Prof. Dr. M. Guba
MN	Universitätsklinikum, Münster	*No delegate appointed*
MR	Universitätsklinikum Gießen und Marburg, Marburg	Prof. Dr. J. Hoyer
MZ	Universitätsmedizin der Johannes-Gutenberg-Universität, Mainz	*No delegate appointed*
RB	Universitätsklinikum, Regensburg	Prof. Dr. M. Scherer
TU	Universitätsklinikum, Tübingen	Prof. Dr. S. Nadalin
WZ	Universitätsklinikum, Würzburg	*No delegate appointed*

Hungary		
BS	Semmelweis Medical University, Budapest	Dr. L. Piros
PC	Medical Faculty of the University, Pecs	*No delegate appointed*

Netherlands		
GR	Academisch Ziekenhuis, Groningen	Dr. R.A. Pol
LB	Leids Universitair Medisch Centrum, Leiden	Prof. Dr. I.P.J. Alwayn / Dr. A.P.J. de Vries

Slovenia		
LO	University Medical Center, Ljubljana	Prof. Dr. A. Tomazic

Lung programs

Austria		*Delegates*
IB	Chirurgische Universitätsklinik, Innsbruck	Dr. C. Krapf
WG	Universitätsklinik für Chirurgie, Wien	Prof. Dr. G. Lang

Belgium		
BR	Université Libre de Bruxelles, Hôpital Erasme, Bruxelles	Dr. Y. Sokolow / Dr. C. Knoop
LA	Cliniques Universitaires St. Luc, Bruxelles	Prof. Dr. P. Evrard
LM	Universitair Ziekenhuis Gasthuisberg, Leuven	Prof Dr. D. Van Raemdonck / Prof. Dr. R. Vos

Germany		
BA	Herz- & Diabeteszentrum Nordrhein-Westfalen, Bad Oeynhausen	Dr. A. Renner
BD	Deutsches Herzzentrum, Berlin	Prof. Dr. C. Knosalla / Prof. Dr. med. V. Falk
ES	Universitätsklinikum, Essen	Dr. A. Koch / Dr. N. Pizanis
FR	Universitätsklinikum, Freiburg	Dr. T. Osei-Agyemang / Dr. Ö. Senbaklavaci
GI	Universitätsklinikum Gießen und Marburg, Gießen	*No delegate appointed*
HG	Universitätsklinikum Hamburg-Eppendorf, Hamburg	Dr. B. Sill
HO	Klinikum der Medizinischen Hochschule, Hannover	Prof. G. Warnecke / Dr. I. Tudorache
HS	Universitätsklinikum des Saarlandes, Homburg/Saar	Prof. Dr. H.-J. Schäfers / Dr. F. Langer
JE	Universitätsklinikum, Jena	*No delegate appointed*
KI	Universitätsklinikum Schleswig-Holstein, Kiel	Prof. Dr. A. Haneya
ML	Klinikum der Universität, München	Dr. N. Kneidinger
MN	Universitätsklinikum, Münster	Dr. K. Wiebe

Hungary		
BS	Semmelweis Medical University, Budapest	*No delegate appointed*

Netherlands		
GR	Academisch Ziekenhuis, Groningen	*No delegate appointed*
RD	Erasmus Medisch Centrum, Rotterdam	Dr. R.A.S. Hoek / Dr. J.A. Bekkers
UT	Universitair Medisch Centrum, Utrecht	Dr. D.A. van Kessel / Dr. H.D. Luijk

Heart programs

Austria		*Delegates*
GA	Chirurgische Universitätsklinik, Graz	*No delegate appointed*
IB	Chirurgische Universitätsklinik, Innsbruck	Dr. J. Dumfarth
WG	Universitätsklinik für Chirurgie, Wien	Prof. Dr. G. Laufer / Prof. Dr. A. Zuckermann

Belgium		
AN	Universitair Ziekenhuis Antwerpen, Edegem	Prof. Dr. I. Rodrigus
AS	Onze Lieve Vrouw Ziekenhuis, Aalst	*No delegate appointed*
BR	Université Libre de Bruxelles, Hôpital Erasme, Bruxelles	Dr. M. Antoine
GE	Universitair Ziekenhuis, Gent	*No delegate appointed*
LA	Cliniques Universitaires St. Luc, Bruxelles	Prof. O. Van Caenegem
LG	Centre Hospitalier Universitaire, Liège	Dr. V. Tchana-Sato
LM	Universitair Ziekenhuis Gasthuisberg, Leuven	*No delegate appointed*

Croatia		
ZA	University Clinical Hospital, Zagreb	*No delegate appointed*
ZD	Clinical Hospital Dubrava, Zagreb	Prof. Dr. I. Rudez

Germany		
BA	Herz- & Diabeteszentrum Nordrhein-Westfalen, Bad Oeynhausen	Prof. Dr. J. Gummert / Prof. Dr. A. Costard-Jäckle
BD	Deutsches Herzzentrum, Berlin	Dr. F. Schönrath / Dr. V. Falk
BH	Kerckhoff Klinik, Bad Nauheim	Dr. T. Ziegelhöffer
DR	Universitätsklinikum Carl Gustav Carus, Dresden	Dr. S. Brose
DU	Universitätsklinikum, Düsseldorf	Prof. Dr. U. Boeken
ER/NB	Universitätsklinikum Erlangen-Nürnberg, Erlangen	Dr. R. Tandler
ES	Universitätsklinikum, Essen	Dr. A. Koch
FR	Universitätsklinikum, Freiburg	Dr. M. Berchtold-Herz
GI	Universitätsklinikum Gießen und Marburg, Gießen	Dr. J. Thul
HB	Universitätsklinikum, Heidelberg	Dr. B. Schmack
HG	Universitätsklinikum Hamburg-Eppendorf, Hamburg	Dr. A. Bernhardt
HO	Klinikum der Medizinischen Hochschule, Hannover	Prof. Dr. A. Haverich / Dr. F. Ius
JE	Universitätsklinikum, Jena	*No delegate appointed*
KI	Universitätsklinikum Schleswig-Holstein, Kiel	Prof. Dr. A. Haneya
KL	Uniklinik Köln-Lindenthal, Köln	Dr. P.B. Rahmanian
LP	Universitätsklinikum, Leipzig	Prof. Dr. D. Saeed / Dr. U. Schulz
ML	Klinikum der Universität, München	*No delegate appointed*
MN	Universitätsklinikum, Münster	Dr. H. Welp
RB	Universitätsklinikum, Regensburg	Prof. Dr. S. Hirt
WZ	Universitätsklinikum, Würzburg	*No delegate appointed*

Hungary		
BG	Gottesegen György National Cardiology Institute, Budapest	Dr. Z. Prodán
BS	Semmelweis Medical University, Budapest	*No delegate appointed*

Netherlands		
GR	Academisch Ziekenhuis, Groningen	Dr. K. Damman
RD	Erasmus Medisch Centrum, Rotterdam	*No delegate appointed*
UT	Universitair Medisch Centrum, Utrecht	Dr. N. de Jonge

Slovenia		
SLO	University Medical Center, Ljubljana	Prof. Dr. I. Knežević

Tissue Typing

Austria		*Delegates*
GA	Universitätsklinik, Abteilung für Transfusionsmedizin und Immunohämatologie, Graz	*No delegate appointed*
IB	Universitätsklinik, HLA Labor, Innsbruck	Dr. A. Mühlbacher
OL	Allgemeines Krankenhaus, Blutzentrale, Linz	Dr. H. Steitzer
WG	Institut für Blutgruppenserologie, Wien	Prof. Dr. G. Fischer
Belgium		
BJ	Universitair Ziekenhuis Brussel, Bloedtransfusiecentrum Jette	Dr. S. Verheyden
BR	Université Libre de Bruxelles, Hôpital Erasme, Tissue typing laboratory, Bruxelles	Dr. V. Holovska
LA	Cliniques Université de Louvain, Tissue typing laboratory, Bruxelles	Prof. Dr. M. Toungouz
LG	Laboratoire des Groupes Sanguins, Liège	Dr. G. Maggipinto
ME	Rode Kruis Vlaanderen, Laboratory for Histocompatibility & Immunogenetics (HILA), Mechelen	Prof. Dr. M.-P. Emonds
Croatia		
RI	Clinical Hospital Center, Tissue Typing Laboratory, Rijeka	Dr. N. Katalinić
ZA	University Clinical Hospital, Zagreb	Prof. Dr. R. Zunec
Germany		
AK	Universitätsklinikum, Transfusionsmedizin, Aachen	*No delegate appointed*
BC	Charité-Campus Virchow Klinikum, Institut für Transfusionsmedizin, Berlin	Dr. N. Lachmann
DR	DRK Blutspendedienst Nord Ost, Dresden	*No delegate appointed*
DU	Institut für Transplantationsdiagnostik und Zelltherapeutika, Düsseldorf	Dr. J. Rox
ER	Institut für Klinische Immunologie, Erlangen	*No delegate appointed*
ES	Universitätsklinikum, Institut für Immunologie, Essen	Dr. F. Heinemann
FM	Immunohaematologie, Blutspendedienst Hessen, Frankfurt	Prof. Dr. C. Seidl
FR	Blutspendedienst, Labor für Gewebetypisierung, Freiburg	*No delegate appointed*
GI	Institut für Klinische Immunologie und Transfusionsmedizin, Gießen	Dr. S. Wienzek-Lischka
GO	Klinikum der Universität, HLA Labor, Göttingen	Prof. Dr. T.J. Legler
HA	Institut für Pathologische Biochemie, Interdisziplinäres Typisierungslabor, Halle	Dr. W. Altermann
HB	Institut für Immunologie und Serologie, Heidelberg	*No delegate appointed*
HG	Universitäts-Krankenhaus Eppendorf, HLA Labor, Hamburg	Dr. M. Marget
HO	Klinikum der Medizinischen Hochschule, Immunohaematologie/Blutbank, Hannover	Dr. M. Hallensleben
KM	Institut für Transfusionsmedizin, Köln-Merheim	Dr. U. Bauerfeind
KS	Institut für Rechtsmedizin, Transplantationsimmunologie, Kaiserslautern	*No delegate appointed*
LP	Klinikum der Universität, Institut für Transfusionsmedizin, Leipzig	Dr. C. Lehmann
LU	Institut für Immunologie und Transfusionsmedizin, Lübeck	Dr. M. Ziemann
ML	Kinderklinik der Ludwig-Maximilians-Universität, HLA Labor, München	Dr. T. Kauke
MN	Universitätsklinikum, Institut für Transfusionsmedizin, Münster	Dr. R. Kelsch
MZ	Universitätsmedizin der Johannes-Gutenberg-Universität, HLA Labor, Mainz	Dr. G. Maccagno
RO	Klinikum der Universität, Abteilung für Transfusionsmedizin, HLA Labor, Rostock	*No delegate appointed*
ST	Klinikum Stuttgart, Zentralinstitut für Transfusionsmedizin und Blutspendedienst	Dr. A. Ender
TU	Klinikum der Eberhard-Karls-Universität, Abt. für Transfusionswesen und Blutbank, Tübingen	Dr. K. Althaus
Hungary		
HU	Hungarian National Blood Transfusion Service	Dr. A. Szilvási
Netherlands		
AW	Centraal Laboratorium Bloedtransfusiedienst, Nederlandse Rode Kruis, Amsterdam	Dr. N.M. Lardy
GR	Laboratorium voor transplantatie-immunologie, Groningen	Dr. B.G. Hepkema
LB	Leiden University Medical Centre, Immunohaematologie, Leiden	Dr. D. Roelen
MS	Academisch Ziekenhuis, Laboratorium voor weefseltypering, Maastricht	Dr. L. Wieten
NY	Academisch Ziekenhuis St. Radboud, Bloedtransfusiedienst, Nijmegen	Dr. W. Allebes
UT	Academisch Ziekenhuis, Bloedbank, Utrecht	*No delegate appointed*
Slovenia		
LO	Tissue Typing Centre, Blood Transfusion Centre, Ljubljana	Dr. B. Vidan-Jeras

7 Scientific output in 2019

"Eurotransplant enables us transplant professionals to gain further knowledge and to exchange our experiences with colleagues from different Eurotransplant member states."

Scientific Output in 2019

The names of authors who work at Eurotransplant central office or at the Eurotransplant Reference Laboratory are indicated in Italic font.

Publications – Articles

1 **Family overrule of registered refusal to donate organs**
Shaw D, Lewis P, Jansen N, *Samuel U*, Wind T, Georgieva D, Haase B, Ploeg R, Gardiner D
Published online : May 7, 2019

2 **Chapter in book: Transplantationsmedizinrecht**
Author: Josef Franz Linder
Chapter: Arbeitsweise, Struktur und Aufgaben von Eurotransplant
S. Vogelaar

Invited Lectures

1 American Transplant Congress, Boston USA, June 4, 2019
Organ Vigilance: The Eurotransplant Experience
S. Vogelaar

2 ESOT, Copenhagen, Denmark, September 15, 2019
Organ exchange in Eurotransplant
J.M. Smits

3 Transplant/coordinator day; Vilvoorde, Belgium, September 26, 2019
Cooperation in Organ Allocation in Eurotransplant
S. Vogelaar

4 Seminar "Transplantationsbeauftragter Artzt", Munich, Germany, October 18, 2019
Allokation-werden Organen gerecht verteilt?
J. M. Smits

5 Formation coordinateur local de dons d'organes et de tissus, Brussels, Belgium, October 21, 2019
Historique et functionnement d' Eurotransplant'
J. M. Smits

6 DSO Modularer Fortbildungskurs 2019 „Transplantationsbeauftragter Arzt" nach dem Curriculum der Bundesärztekammer, Berlin, Germany, November 12, 2019
Organverteilung / Vermittlungsstelle Eurotransplant
S. Vogelaar

7 3rd Transplant Coordination Course -International Transplant, Istanbul, Turkey, November 25, 2019
Quality and Safety in Organ Donation and Transplantation
J. M. Smits

8 Meeting Eurotransplant / Ministry of Health, Brussels, Belgium, December 3, 2019
Evolution of registration fee on waiting list/new structure Eurotransplant
S. Vogelaar

9 Vortrag Allokation Refresherkurs Koordinatoren DSO, Frankfurt, Germany, December 12, 2019
Aufgabe Eurotransplant
S. Vogelaar

Oral presentation

1 2019 Eurotransplant Winter Meeting, Alpbach, Austria, January 24, 2019
Interactive session: Pancreas audits
De Boer J

8 Eurotransplant personnel related statistics

"Eurotransplant gives you a much better chance of finding suitable donor organs for your patients in good time. This means that we can help more patients."

Eurotransplant personnel related statistics

Intake

	Number of new employees	Number of employees (Dec. 31, 2019)	Intake percentage
Regular	18	78	23,1%
Flex	9	28	32,1%
Total	**27**	**106**	**25,5%**

Outflow

	Exit number	Number of employees (Jan. 1, 2019)	Outflow percentage
Regular	22	81	27,2%
Flex	5	23	21,7%
Total	**27**	**104**	**26,0%**

Employees on December 31, 2019

	Numbers	FTE
Flex	28	8,77
Part-timer	45	34,50
Full-timer	26	26,00
Full-timer + (>36 hours/week)	7	7,67
Total	**106**	**76,94**

Average FTE's

	GrossFTE	Recharged *	Nett FTE
Personnel in FTE's	79,65	6,26	73,39

* The FTE's based on the shared services will partially be recharged to the Dutch Transplant Foundation.

Divison Male/Female

	Male		Female	
	Nr.	%	Nr.	%
Regular	35	44,9%	43	55,1%
Flex	11	39,3%	17	60,7%
Total	**46**	**43,4%**	**60**	**56,6%**

Nett Absentee Rates*

	absenteeism	Rolling absentee frequencies	Average absentee duration
Regular & Flex	2,68%	1,34	6,87

* Nett absenteeism concerns all absenteeism caused by illness, excluding insured absenteeism.

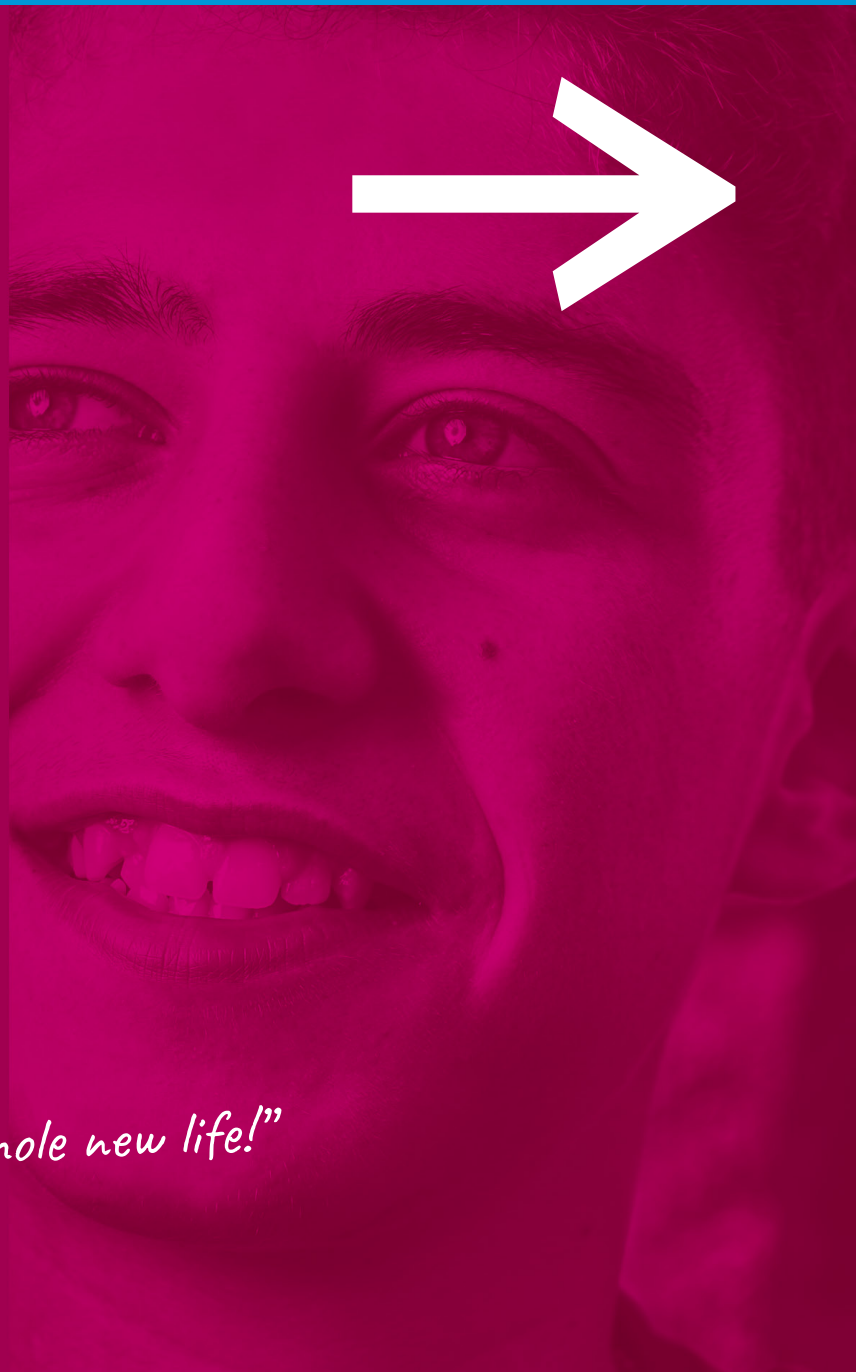
In case of insured absenteeism, the employer receives sickness benefits for the absenteeism. This involves absenteeism related to pregnancy or maternity, organ donation or with regard to employees who have a prior history of insured absenteeism.

Gross Absentee Rates**

	absenteeism	Rolling absentee frequencies	Average absentee duration
Regular & Flex	3,29%	1,34	8,36

** Gross absenteeism concerns all absenteeism caused by illness.

9 Abbreviated financial statements



"I have a whole new life!"

Abbreviated financial statements

Abbreviated financial statements of Stichting Eurotransplant International Foundation, for the year ended December 31, 2019

For a full understanding of the Foundation's financial position and results, the abbreviated financial statements should be read in conjunction with the annual accounts from which the abbreviated financial statements have been derived. These annual accounts are available at the Foundation.

The purpose of these abbreviated financial statements is to give insight in equity (reserve funds), solvency, liquidity and the result for the year. The criteria and the aggregation level of the abbreviated financial statements are applied to these.

Balance sheet

Assets	**31.12.2019** x € 1.000	**31.12.2018** x € 1.000
Fixed assets	1.571	275
Short term receivables	3.109	2.956
Liquid assets	2.357	2.319
	7.037	**5.550**

Liabilities	**31.12.2019** x € 1.000	**31.12.2018** x € 1.000
Capital	235	235
Reserve funds	2.288	1.697
Provisions	92	99
Long term liabilities	1.307	-
Short term liabilities	3.114	3.519
	7.037	**5.550**

Statement of income and charges

Income	**2019** x € 1.000	**2018** x € 1.000
Registrations	10.568	9.593
Rehousing	-1.555	-
Contribution CORE	400	-963
Transport costs	-60	-60
Audit costs	-118	-102
	9.235	**8.468**
Procurement fees	2.926	3.593
Donor typing fees Belgium	109	94
Miscellaneous	140	164
	3.175	**3.850**
	12.410	**12.318**

Charges	**2019** x € 1.000	**2018** x € 1.000
Salaries	5.156	5.599
External personnel and other personnel costs	851	596
Procurement charges	2.998	3.537
General expenses	1.740	1.749
Medical expenses	472	451
Housing	211	242
Depreciation	109	101
Donor typing costs Belgium	144	89
Miscellaneous	138	61
	11.818	**12.425**

Appropriation of the exploitation balance		
Release / Addition General Reserve	687	-147
Release / Addition Reserve Information Backbone	-	-58
Release / Addition Reserve Fund Clearinghouse procurement fees	-95	99
	591	**-107**

Accounting policies

General accounting principles for the preparation of the abbreviated financial statements

The annual accounts have been prepared in accordance with Guideline 640 of the Dutch Accounting Guidelines from which the abbreviated financial statements have been derived.

Eurotransplant and the health insurers have an agreement about the yearly budget. After two years Eurotransplant will reimburse the health insurers if the number of invoiced registrations is higher and the costs for audits and transport are lower than in the approved budget. On the other hand, health insurers will reimburse Eurotransplant if the number of invoiced registrations is lower and the costs for audits and transport are higher than in the approved budget.

The approved budget for income from registrations and costs for audits and transport is presented in the Statement of Income and Charges. The settlements of the different years are presented in the Balance Sheet.

Valuation of assets and liabilities and determination of the result takes place under the historical cost convention. Unless presented otherwise at the relevant principle for the specific balance sheet item, assets and liabilities are presented at face value.

Income and expenses are accounted for on accrual basis. Profit is only included when realized on the balance sheet Losses originating before the end of the financial year are taken into account if they have become known before preparation of the abbreviated financial statements.

Consolidation principles

Financial information relating to group companies and other legal entities controlled by Eurotransplant International Foundation or where central management is conducted, should have been consolidated in the financial statements of Eurotransplant International Foundation.

In accordance with article 2:407 paragraph 1a of the Netherlands Civil Code the annual accounts of Stichting Vrienden van de Stichting Eurotransplant are not consolidated in the financial statements of Eurotransplant International Foundation.

Financial instruments

Financial instruments be both primary financial instruments, such as receivables and payables, and financial derivates. For the principles of primary financial instruments, reference is made to the treatment per balance sheet item.

Translation of foreign currency

Receivables, liabilities and obligations denominated in foreign currency are translated at the exchange rates prevailing balance sheet date.

Transactions in foreign currency during the financial year are recognised in the abbreviated financial statements at the exchange rates prevailing at transaction date. The exchange differences resulting from the translation as of balance date, taking into account possible hedge transactions, are recorded in the profit and loss account.

Principles of valuation of assets and liabilities

Tangible fixed assets
Tangible fixed assets are presented at cost less accumulated depreciation and, if applicable, less impairments in value. Depreciation is based on the estimated useful life and calculated as a fixed percentage of cost, taking into account any residual value. Depreciation is provided from the date an asset comes into use.

Accounts receivable
Receivables are included at face value, less any provision for doubtful accounts. These provisions are determined by individual assessment of the receivables.

Other receivables, prepaid expenses, accruals and short term liablities
These items are stated at nominal value.

Reserve Funds
Reserve Funds are formed for future expenditures which should be covered out of the available assets.

The Reserve Funds can be considered as reserves as set out in Dutch Accounting Guideline 640 whereas the setting of the objective of each Reserve Fund is determined by the Board of Management.

Provisions
The provision for jubilee is based on the expected costs for a series of years. Payments for a jubilee are deducted from the provision.

Provision for employee benefits
Industry pension fund scheme:

The pension plan according to the Collectieve Labour Agreement for General Hospitals is financed through contributions to an industry pension fund (the pension provider). The pension obligations of this plan are valued according to the 'valuation to pension fund approach'. This approach accounts for the contribution payable to the pension provider as an expense in the statement of income and charges.

Principles for the determination of the result

Registration fees
Registration fees are based on the approved budget.

Operating (government) grants
Operating grants are included in the statement of income and charges in the year to which the subsidized costs charged.

Charges
The general expenses of Stichting Eurotransplant International are stated on the basis of transaction costs.

Certain general expenses of the Nederlandse Transplantatie Stichting and Stichting Eurotransplant international Foundation are made for common account. Such costs are divided between the two foundations on the basis of activity-levels.

Exploitation Balance
The exploitation balance is defined as the difference beween income and charges, based on the above mentioned policies.

Signing of the Abbreviated Annual Accounts

Leiden, May 26, 2020

Independent auditor's report

To the Board of Management of Stichting Eurotransplant International Foundation

Our opinion

The accompanying abbreviated financial statements 2019 of Stichting Eurotransplant International Foundation is derived from the audited annual accounts of Stichting Eurotransplant International Foundation for the year ended December 31, 2019

In our opinion the accompanying abbreviated financial statements are consistent, in all material respects, with the audited annual accounts of Stichting Eurotransplant International Foundation 2019, on the bases described in the notes to the abbreviated financial statements.

The accompanying abbreviated financial statements 2019 comprise:

- the abbreviated balance sheet as at December 31, 2019
- the abbreviated statement of income and charges then ended; and
- the related notes.

Abbreviated financial statements

The abbreviated financial statements do not contain all the disclosures required by Guideline for annual reporting 640 "Not-for-profit organisations" of the Dutch Accounting Standards Board. Reading the abbreviated financial statements and our report thereon, therefore, is not a substitute for reading the audited financial statements of Stichting Eurotransplant International Foundation and our auditor's report thereon.

The audited financial statements and our auditor's report theron

We expressed an unmodified audit opinion on the audited financial statements 2019 of Stichting Eurotransplant International Foundation in our auditor's report of May 26, 2020.

In the unmodified audit opinion on the audited financial statements 2019 a paragraph of emphasis of the impact of the coronavirus is recorded. Management disclosed the current impact and her plans to deal with these events or circumstances in pages 10 and 37 of the audited financial statements.

Responsibilities of management and supervisory board

Management is responsible for the preparation of the abbreviated financial statements 2019 in accordance with the accounting policies as applied in the annual accounts of Stichting Eurotransplant International Foundation, on the bases described in the notes to the abbreviated financial statements.

The supervisory board is responsible for overseeing the company's financial reporting process.

Our responsibilities

Our responsibility is to express an opinion on whether the abbreviated financial statements 2019, are consistent, in all material respects, with the audited financial statements based on our procedures, which were conducted in accordance with Dutch Law, including the Dutch Standard on Auditing 810 "Engagements to report on summary financial statements".

The Hague, May 26, 2020

Deloitte Accountants B.V.

Signed on the original:
M.A. van Dreumel

List of abbreviations

AC	Advisory Committee
ACO	Approved Combined Organ
AM	Acceptable Mismatch
CDC	Complement Dependent Cytotoxicity
CERTAIN	Cooperative European Pediatric Renal Transplantation Initiative
CRM	Client Relation Management
DCD	Donation after Circulatory Death
DSO	Deutsche Stiftung Organtransplantation
DWH	Data Warehouse
EAS	Eurotransplant Audit System
EDITH	The Effect of Differing Kidney Disease Treatment Modalities and Organ Donation and Transplantation Practices on Health Expenditure and Patient Outcomes
ELIAC	Eurotransplant Liver Intestine Advisory Committee
ENIS	Eurotransplant Network Information System
EPAC	Eurotransplant Pancreas Advisory Committee
EPAS	Eurotransplant Pancreas Allocation System
EPT	External Proficiency Testing
ERAC	Eurotransplant Registry Advisory Committee
ESC	European Society of Cardiology
ESDP	Eurotransplant Senior DR-matching Program
ET	Eurotransplant
ETEC	Eurotransplant Ethics Committee
EThAC	Eurotransplant Thoracic Advisory Committee
ETIAM	Eurotransplant Identity and Access Management
ETKAC	Eurotransplant Kidney Advisory Committee
ETKAS	Eurotransplant Kidney Allocation System
ETRL	Eurotransplant Reference Laboratory
EU	European Union
FC	Financial Committee
FTE	Full Time Equivalent
GDPR	General Data Protection Regulation
HLA	Human Leucocyte Antigen
HR	Human Resources
HU	High Urgent
ISWG	Information Services Working Group
ISHLT	International Society for Heart & Lung Transplantation
ISMS	Information Security Management System
ISO	International Organization for Standardization
IQTIG	Institut für Qualität und Transparenz im Gesundheitswesen
IT	Information Technology
LAS	Lung Allocation Score
MARS	Molecular Adsorbents Recirculation System
MELD	Model for End stage Liver Disease
MT	Management Team
NDTR	National German Transplant Registry
NHSBT	National Blood and Health Services
NT	Not Transplantable
NTS	Nederlandse Transplantatie Stichting
OEA	Organ Exchange Agreement
OEO	Organ Exchange Organization
OPCC	Organ Procurement Chain Committee
PDCA cycle	Plan-Do-Check-Act cycle
PFT	Pulmonary Function Test
PRA	Panel Reactive Antibodies
RB	Review Board
SAE/R	Serious Adverse Event/Reaction
SE	Standard Exception
SOP	Standard Operation Procedure
SPA-SA	Solid Phase Assays Single Antigen
SRAC	Scientific Registry Advisory Committee
SRWG	Scientific Registry Working Group
SU	Special Urgency
TTA	Teaching and Training Agreement
TTAC	Tissue Typing Advisory Committee
TTC	Tissue Typing Centers
QMS	Quality Management System

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Eurotransplant International Foundation
P.O. Box 2304
2301 CH Leiden
The Netherlands

Tel. +31-71-579 58 00
Fax. +31-71-597 00 57
www.eurotransplant.org
twitter.com/eurotransplant

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