Slovenija-transplant

# ORGAN AND TISSUE DONATION AND TRANSPLANTATION IN SLOVENIA

# 2023

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***Organ and tissue donation and transplantation in Slovenia 2023***


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# INTRODUCTORY WORDS

In the field of organ donation, 2023 was a very successful and ground-breaking year. In the face of the ongoing crisis in the Slovenian healthcare system, we have for the third year managed to achieve admirable results. We significantly exceeded more than one of our annual plans and reached important milestones.

For the first time since Slovenija-transplant existence, we exceeded the number of 30 active donors PMP. This milestone probably represents a plateau in the Slovenian donation system, which has been based solely on brain dead donors. The excellent results are partly due to the very high level of public support, as the consent for donation in 2023 rose to 79%. Co-operation with hospital transplantation coordinators also improved, and for the first time at least one potential deceased donor was detected in all of 11 donor hospitals around Slovenia.

We were also very effective with the Institute complementary tasks in donation programme. These include informing the public (with a renewed website), publishing high-quality articles in traditional and digital media, educating the public and medical professionals about organ donation and transplantation, and development through participation in international projects. We have contributed to the development of the new SoHO EU regulation, improved data sharing at international level (in line with the GDPR), quality and safety and the prevention of human organ trafficking.

In order to fulfil the vision and strategy of the Institute, it is not enough to achieve the objectives set, but it is also necessary to enable the continuous development of activities with constant concern for the quality and safety of patients treated with donated organ, tissue or cell transplantation. We have succeeded and we have every reason to be proud.

I invite you to browse through our annual publication and find out more about work results.

**Andrej Gadžijev, *MD***
Director and physician responsible for donation medicine

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## THE SLOVENIJA-TRANSPLANT INSTITUTE

Since 2002 the Institute of the Republic of Slovenia for the Transplantation of Organs and Tissues Slovenija transplant has been the central national expert institution for connecting, co-ordinating, promoting and supervising donor and transplantation activity in Slovenia. The Institute creates the organisational conditions, professional protocols and appropriate legislation to ensure that we have a successful, ethical, high quality and transparent organ donation system in Slovenia.

Established in 1998, Slovenija-transplant is the primary co-ordination office of the national transplantation network. This network consists of 11 donor hospitals across Slovenia, the Transplantation Centre at the Ljubljana University Medical Centre, and the Tissue Typing Centre within the Blood Transfusion Centre of Slovenia. It operates the donor and recipient programme, while also ensuring that medical treatment with a transplantation is possible for all who need it. The expert teams are in a state of readiness 24 hours a day, every day of the year.

Slovenia has been a member of Eurotransplant, a non-profit organisation for the exchange of organs and tissues, since 2000. After meeting the demanding admission criteria, it was the first country in the region to join the group of five successful countries in the field of transplant treatment, i.e. Germany, Austria, Belgium, Luxembourg and the Netherlands. Today, Eurotransplant, based in Leiden in the Netherlands, brings together 8 countries and over 137 million inhabitants. This membership is important for our patients because joining Eurotransplant has significantly improved their chances of survival and the results of transplant treatment. It ensures better compatibility between donor and recipient and finding a suitable recipient for each donated organ. Membership in Eurotransplant also enables continuous professional development and improvement.

Since its foundation, the Institute has continued to develop in line with international guidelines. We endeavour to create an informed and motivated professional public and to consistently strengthen public confidence in the organ donation system through multi-pronged communication.

Through its membership of international expert committees and participation in European projects, the Institute is closely involved in the international environment, also as an active co-designer of strategies, development and training of experts. We continue to set an internationally recognised example of how a national donor programme should be organised and managed. In its management and leadership of activities for procuring and using parts of the human body for medical treatment purposes, Slovenija-transplant consistently complies with the legislation, European directives and

adopted international conventions.  We also ensure that national legislation and expert protocols are promptly updated. Any changes we introduce are based on expert medical decisions and proposals, critical social considerations as well as the principles of medical ethics and deontology.

The key guidelines of our Institute's operations include:
self-sufficiency – patient equality and safety – optimal effectiveness – quality – traceability – professionalism – non-commercial orientation – transparency – voluntary donation – prevention of abuse.

Since January 2022, Slovenija-transplant has been led by Andrej Gadžijev, MD, a specialist in traumatology and physician responsible for donation activities. Danica Avsec, MD, deputy director, is also a physician responsible for donation activities. In 2023, the Institute employed 9 full-time employees and worked with 119 people under contract in the donor programme. The Institute operates under the auspices of the Ministry of Health of the Republic of Slovenia.

# OUTSTANDING ACHIEVEMENTS AND HIGHLIGHTS OF 2023

## DONATION PROGRAMME

- For the first time, more than 30 actual deceased donors PMP were achieved (30.66)
- For the first time, more than 27 utilized deceased donors PMP were achieved (27.36)
- For the first time, at least one potential deceased donor was detected in all 11 donor hospitals in the national donation network
- The consent of relatives for donation increased significantly (from 68% in 2022 to 79% in 2023)

## EDUCATION AND PUBLIC AWARENESS

- In line with contemporary communication and technical demands, a new institute's website www.slovenija-transplant.si was developed.
- The National donor Register recorded the highest number of donation declarations on the annual level: 2.129 people expressed their will (2.101 for donation; 28 against donation).
- In collaboration with the Spanish Donation and Transplantation Institute (DTI), we organised the anniversary, 10th intensive Transplant Procurement Management course. Over the past ten years, 327 participants from donor hospitals throughout Slovenia have taken part in this demanding training course on donor medicine.
- We regularly informed the professional public with an e-newsletter about quarterly statistics and professional news. We published 4 issues of the Slovenija-transplant professional newsletter.
- We published and recorded more than 1800 press news about organ donation and transplantation in traditional and new Slovenian media. (Source: PressClipping).
- The travelling exhibition My Scar, My Life was put on display at the Maribor University Medical Centre, the Eskulap Gallery at the Sevnica Health Centre, the Brežice General Hospital, the National Assembly and the Secondary School of Health and Cosmetic in Celje. The project has been running successfully in close cooperation with the Slovenian patient association Transplant.

## EU PROJECTS AND DEVELOPEMENT

- In line with transparency, traceability and quality requirements, the modules and codes in the national information programme for tissues and cells were upgraded. The European Commission praised the quality and progress of the application, which is unique in the international

environment.

- The II. public research competition of Slovenia-transplant for the best research work was successfully implemented. The first prize was won by Tadej Zorman with the discussion Ethical aspects of donation after circulatory death.
- In excellent cooperation with Polish partner Fundacja Pasjonaci Zycia Slovenija-transplant concluded international Erasmus+ project You are more than one life: adult education about organ transplantation. Among other things, we have recorded 15 short but inspiring videos about the experiences of people who needed organ transplantation treatment
- As part of the ongoing EU BRAVEST project, we have made important changes to the international exchange of data on donors and recipients in line with the General Data Protection Regulation and the requirements of research.
- We have advocated for the implementation of the national Act on Ratification of the Council of Europe Convention against Trafficking in Human Organs (2022). Slovenia is one of the most advanced Council of Europe countries in this field.

# NEW WEBSITE OF THE INSTITUTE

In line with strategic communication plan we have developed a new institute's website www.slovenija-transplant.si. We have undertaken the renovation thoughtfully, taking into account interdisciplinary knowledge, contemporary research results, but always with a view to the users and the specifics of the field of organ donation. In terms of design (choice of colours, animations, selection of photos, etc.) and content, the website is in many ways innovative and bold compared to the trends of websites of public institutions. It also stands out internationally in terms of concept and content.

BEST DIGITAL PROJECT OF THE YEAR 2023 – NETKO AWARD

We are proud that the expert jury of the competition for the best websites on the .si domain - Netko recognised the innovative approach and awarded the Slovenija-transplant website with a special reward. Not only did we win in the public and non-governmental organisations category, we were also voted the best project of 2023.

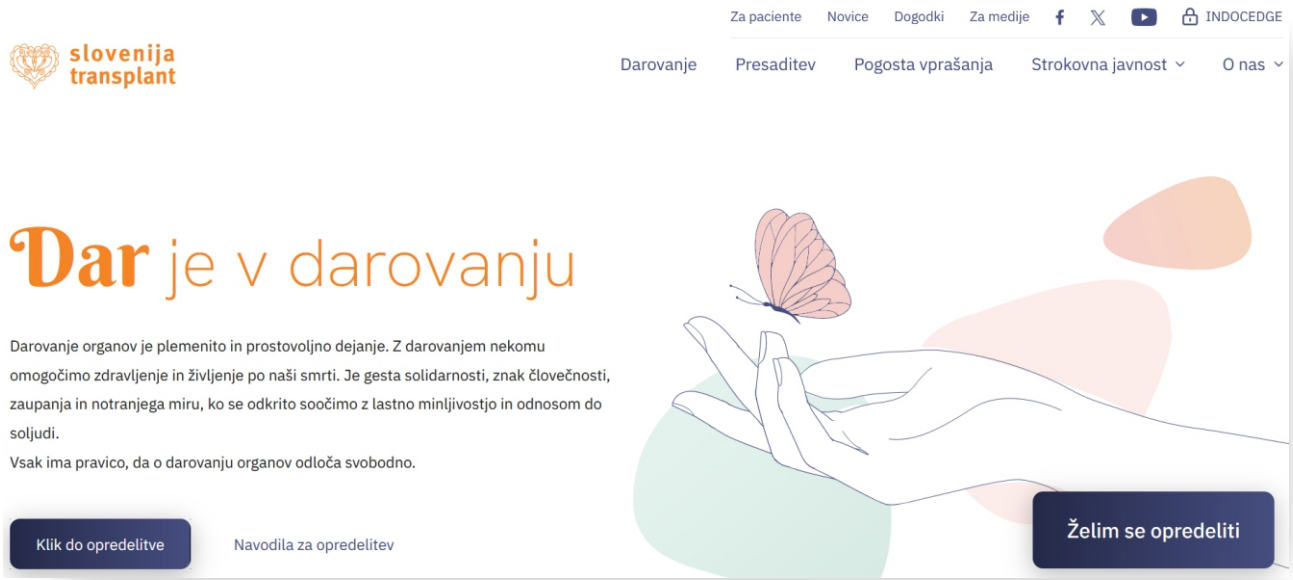
The project is a result of the excellent cooperation between Slovenija-transplant and the Numo agency. It was created by a distinctly interdisciplinary team of experts, which is why content, purpose and design complement each other in a meaningful and creative way

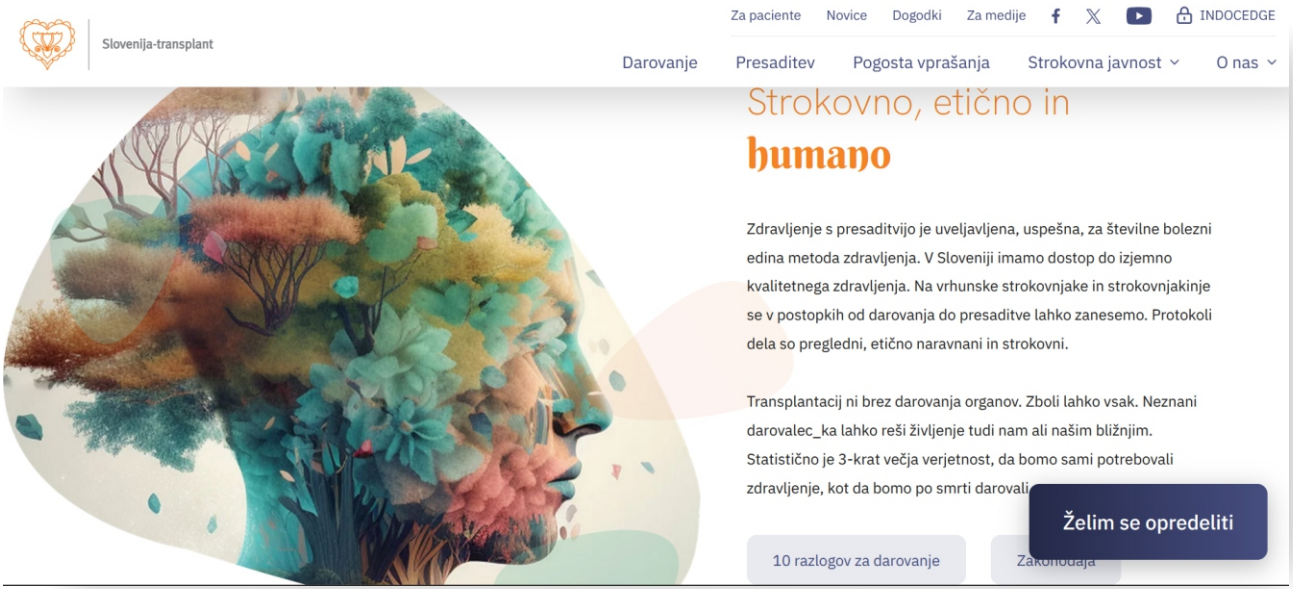
When developing the website, we were constantly looking for a balance between a good user experience for basic and more sophisticated, digitally savvy users, between the younger and older population, between the length and complexity of the medical content presented, between legal restrictions and the rules of modern online communication. A clean, fresh but media-rich and intuitive website has been created, offering users a rich and enjoyable digital experience and encouraging them to think about organ donation after death, which for many is still anxious, unusual and difficult.

In special segments, we address the professional public, the general public, the media and patients before and after transplantation. The tone of communication is always respectful and genuine, and strengthens the public's trust in the organ donation system in Slovenia.

The website was written, designed and realised with humanity and sustainability in mind. That is why we have also installed the hosting of the website on servers that are powered exclusively by renewable energy - wind energy. We presented it to the public at a press conference on 13 October 2023 to mark European Donation Day.

## www.slovenija-transplant.si









*New institute's website www.slovenija-transplant.si won the prestigious Netko Best project award, the symbol of online excellence. The project was also recognized as outstanding and the winner in the category governmental and non-profit organisations.*

*Web pages at the Netko competition were evaluated by an independent panel of 18 experts, who dove deep into the most creative digital projects on level of content, user experience and technical solutions.*

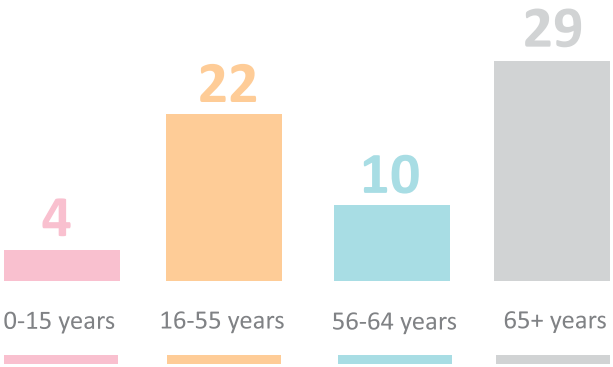
# KEY STATISTICS FOR 2023

## *Actual deceased donors in 2023*




** Average age of deceased donors was 60 years.*

by age groups:




## *Family interviews and consent rate for donation*

*Transplant coordinators conducted 95 interviews with deceased person's close relatives about donation.*

***Consent rate: 79 %***

## *National Donor Register*

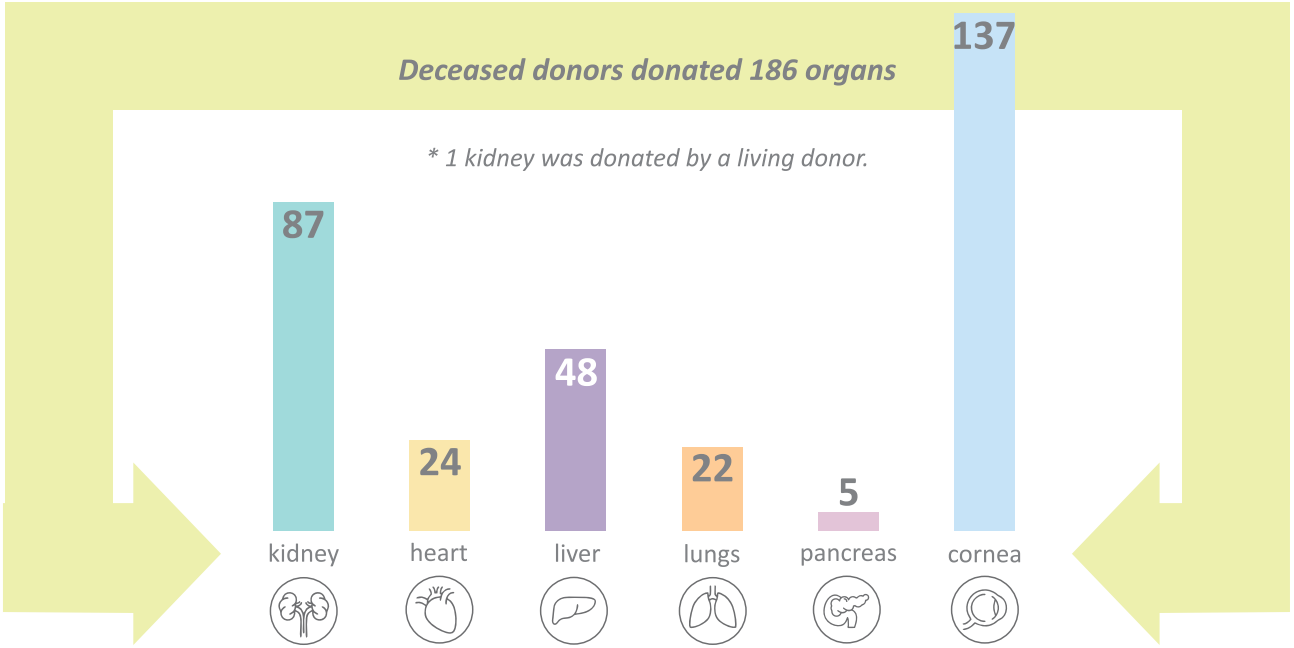
**15,695** declarations

**15,585 FOR** donation

110 AGAINST donation

## *Deceased donors donated 186 organs*

** 1 kidney was donated by a living donor.*



***Waiting list:***
***183 pacients*** *(status on 31. 12. 2023).*

**KIDNEY: 76**
**1 in combination with pancreas, 1 with heart*

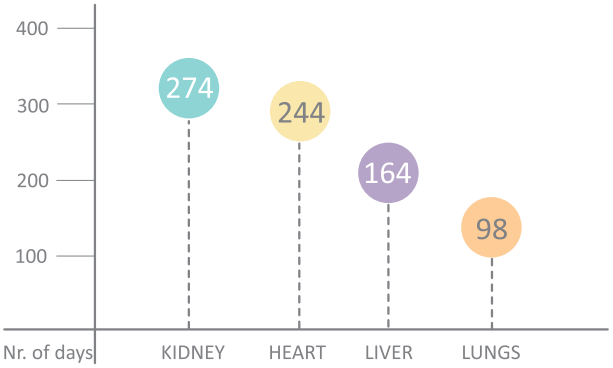
**HEART: 79**
** 1 in combination with kidney*

**LIVER: 19**

**LUNGS: 8**

**PANCREAS: 3**
** 1 in combination with kidney*

***Average waiting time in days***

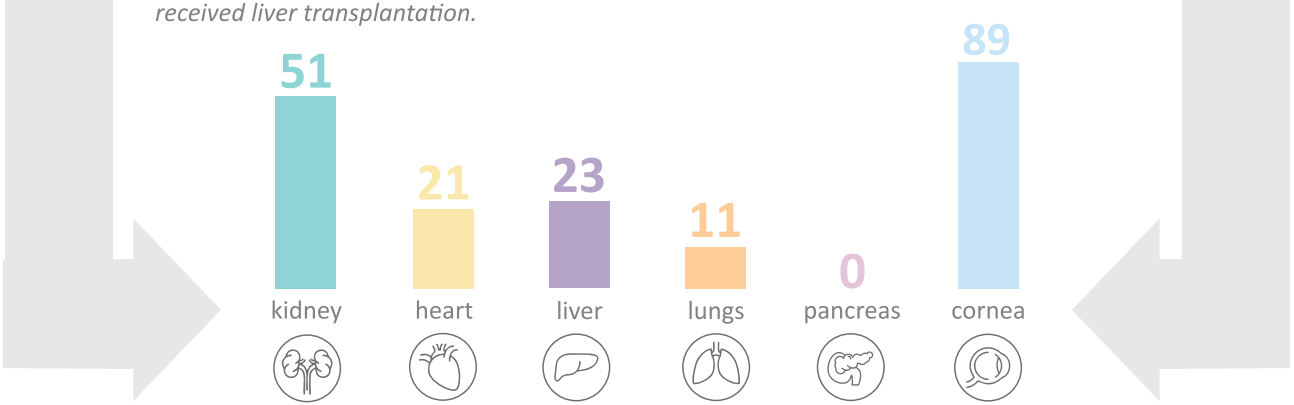



***Waiting list in Eurotransplant***
*(status on 31. 12. 2023):* ***13,498 patients***

**In the Transplantation Centre in UMC Ljubljana**
**106 solid organs were transplanted**

** One transplantation of kidney was from a living donor. Two additional kidneys were transplanted to Slovenian pediatric patients in Graz, Austria.*

** In Bergamo, Italy, three Slovenian paediatric patients received liver transplantation.*












*Donation programme and end of life care, challenges and results in the national donation programme: presentations at the 30th international symposium on intensive care medicine, Slovenian society of intensive care, 26-27 May 2023, Congress centre Brdo.*

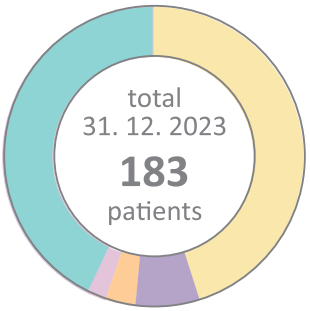
# SOLID ORGANS

# NATIONAL WAITING LIST FOR ORGAN TRANSPLANTATION

The waiting list is a list of patients waiting for treatment with transplantation of organ. The indications for transplantation are specific to each organ/tissue/cell. All patients in the Republic of Slovenia have the possibility of being included on the list of recipients and have equal access to this treatment. At the end of 2023, 183 patients were waiting for an organ transplant. The number was higher compared to the previous year, especially for the heart waiting list. The average waiting period for all organs is relatively short compared to EU countries. On average, Slovenian patients wait for a heart, liver or kidney transplant for less than 1 year. For more information on average waiting periods for specific organs, please see the chapter Follow-up results.

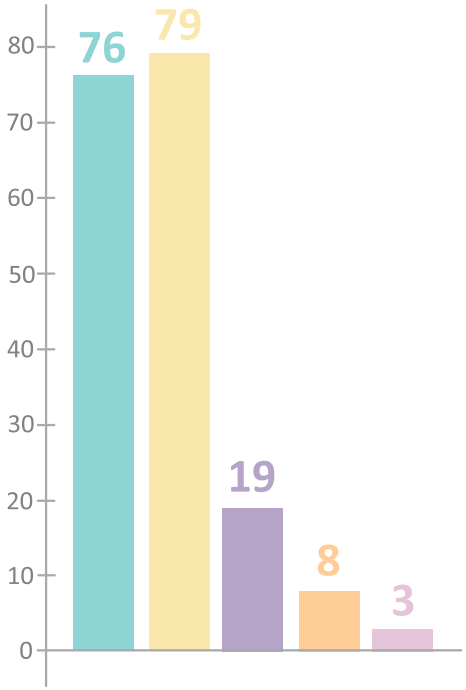
In 2023, 151 Slovenian patients were included on the waiting list for the first time: 58 for a kidney, 48 for a heart, 16 for a lung and 29 for a liver transplantation.

***Status of the national waiting list on 31.12.2023 (all patients)***




KIDNEY
* HEART
LIVER
LUNGS
** PANCREAS

*1 in combination with a kidney.
** 1 in combination with a kidney.




*Source: http://statistics.eurotransplant.org/*

***Status of the national waiting list in the 2011–2023 period***
*(as at 31.12., all patients)*

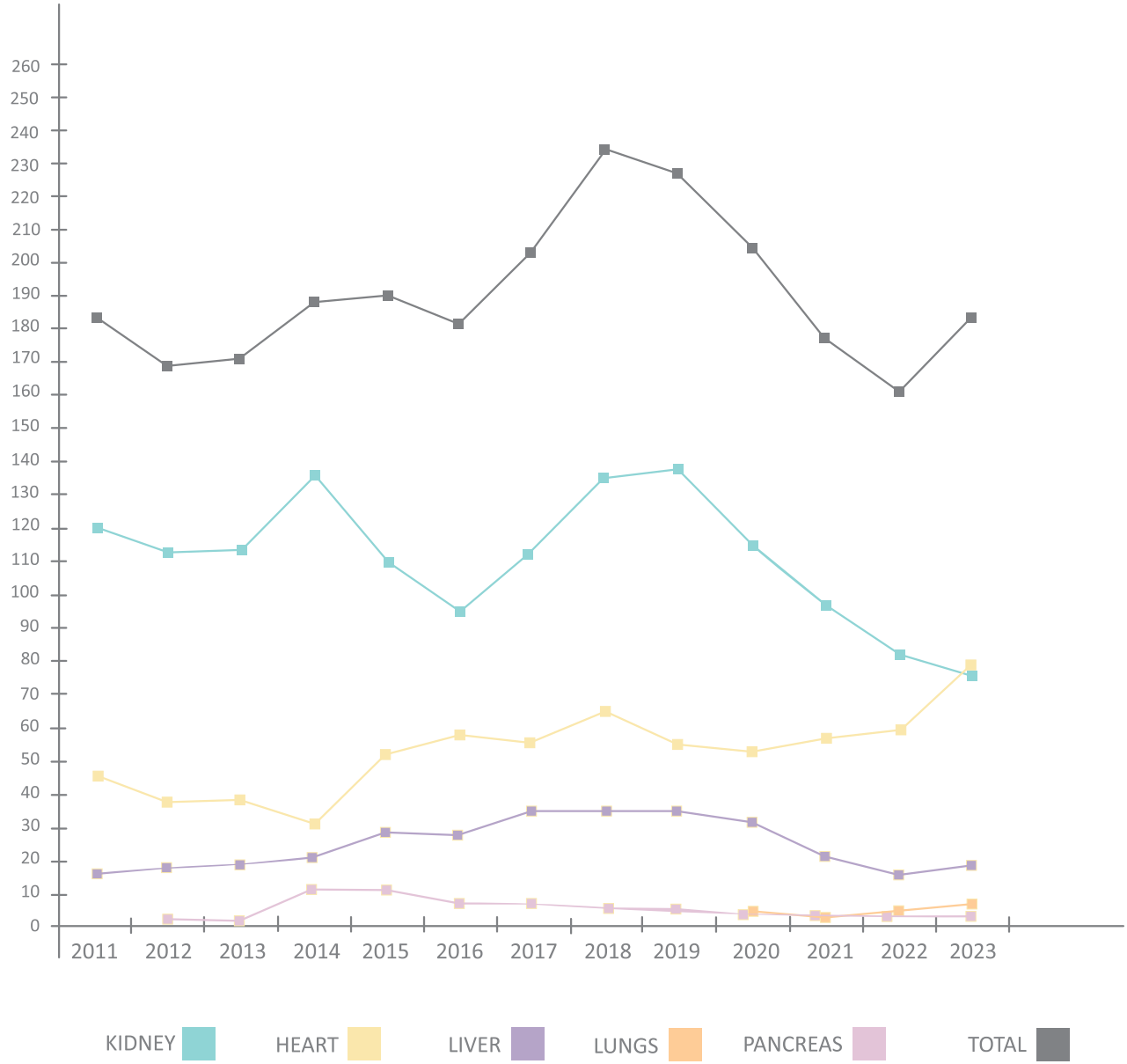
| YEAR | KIDNEY | HEART | LIVER | LUNGS* | PANCREAS | TOTAL |
|---|---|---|---|---|---|---|
| 2011 | 120 | 46 | 17 | | | **183** |
| 2012 | 113 | 38 | 18 | | 2 | **169** |
| 2013 | 114 | 39 | 19 | | 1 | **171** |
| 2014 | 136 | 31 | 21 | | 11 | **188** |
| 2015 | 110 | 52 | 29 | | 11 | **190** |
| 2016 | 95 | 58 | 28 | | 7 | **181** |
| 2017 | 112 | 56 | 35 | | 8 | **203** |
| 2018 | 135 | 65 | 35 | | 6 | **234** |
| 2019 | 138 | 55 | 35 | | 5 | **227** |
| 2020 | 115 | 53 | 32 | 5 | 4 | **204** |
| 2021 | 97 | 57 | 21 | 3 | 4 | **177** |
| 2022 | 82 | 60 | 16 | 5 | 3 | **161** |
| 2023 | 76 | 79 | 19 | 8 | 3 | **183** |

KIDNEY HEART LIVER LUNGS PANCREAS

*Before September 2020, Slovenian patients waiting for a lung transplant were included on the Austrian waiting list .

*Source: http://statistics.eurotransplant.org/*

## *Trends in patient numbers on the waiting list, by organ, and total for the 2011–2023 period*



### *Waiting list mortality for the 2011–2023 period*

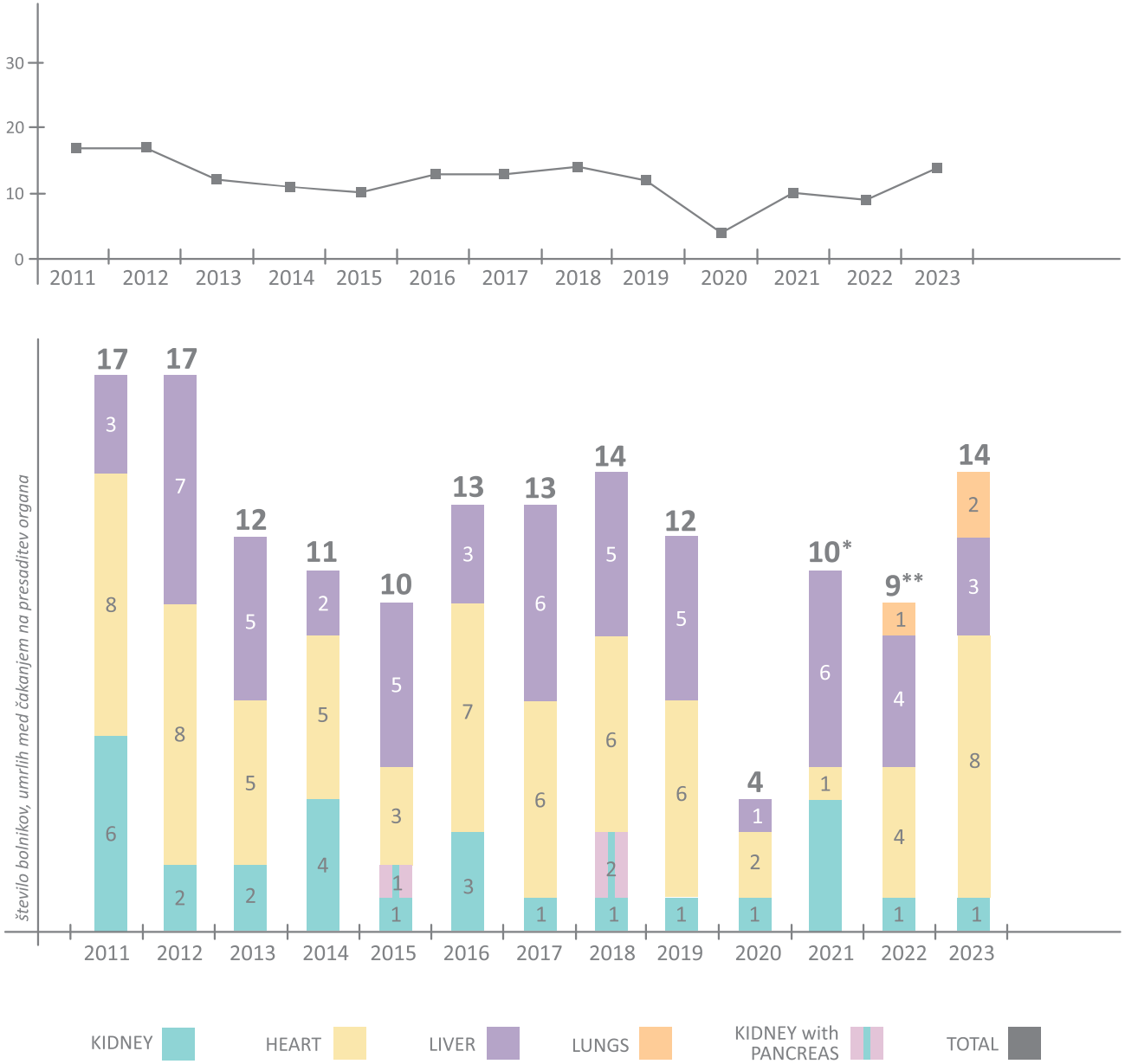
*The following data show the number of patients who were included on the waiting list for an organ transplant and died during the waiting period. The cause of death was not always related to the failure of the organ for which they were waiting to be transplanted.*

| YEAR | KIDNEY | KIDNEY and PANCREAS | HEART | LIVER | LUNGS | TOTAL |
|---|---|---|---|---|---|---|
| 2011 | 6 | | 8 | 3 | | **17** |
| 2012 | 2 | | 8 | 7 | | **17** |
| 2013 | 2 | | 5 | 5 | | **12** |
| 2014 | 4 | | 5 | 2 | | **11** |
| 2015 | 1 | 1 | 3 | 5 | | **10** |
| 2016 | 3 | | 7 | 3 | | **13** |
| 2017 | 1 | | 6 | 6 | | **13** |
| 2018 | 1 | 2 | 6 | 5 | | **14** |
| 2019 | 1 | | 6 | 5 | | **12** |
| 2020 | 1 | | 2 | 1 | | **4** |
| 2021 | 4 | | 1 | 6 | | **10*** |
| 2022 | 1 | | 4 | 4 | 1 | **9**** |
| 2023 | 1 | | 8 | 3 | 2 | **14** |

* One deceased patient was waiting for a combined kidney and liver transplant.
** One deceased patient was waiting for a combined kidney and liver transplant.

*Source: http://statistics.eurotransplant.org/*

## *Trends in waiting list mortality for the 2011–2023 period*



# THE CRITICAL PATHWAY FOR ORGAN DONATION

*Source: The Madrid Resolution on Organ Donation and Transplantation*

## POSSIBLE DECEASED ORGAN DONOR

**A patient with a devastating brain injury or lesion OR a patient with a circulatory failure AND apparently medically suitable for organ donation**

| Donation after Circulatory Death (DCD) | Treating Physician to Identifylrefer a potential donor | Donation after BrainDeath (DBD) |
|---|---|---|
| **POTENTIAL DCD DONOR**<br>**A.** A person whose circulatory and respiratory functions have ceased and resuscitative measures are not to be attemped or continued. **OR**<br>**B.** A person in whom cessation or circulatory and respiratory functions is anticipated to occur within a time frame that will enable organ recovery. | **Reasons why a potentional donor does not become a utilized donor**<br><br>**System**<br>• Failure to identify/refer a potential or eligible donor<br>• Brain death diagnosis not comfirmed (e.g. does not fulfil the criteria) or completed (e.g. lack of technical resources or clinician to make diagnosis or perform confirmatory tests)<br>• Circulatory death not declared within the appropriate time frame<br>• Logistical problems (e.g. no recovery team)<br>• Lack of appropriate recipient (e.g. child, blood type, serology positive)<br>**Donor/organ**<br>• Medical unsuitability (e.g. serology positive, neoplasia)<br>• Haemodynamic instability/unanticipated cardiac arrest<br>• Anatomica, histological and/or functional abnormalities of organs<br>• Organs damaged during recovery<br>• Inadequate perfusion of organs or thrombosis<br>**Permission**<br>• Expressed intent of deceased not to be donor<br>• Relative's refusal of permission for organ donation<br>• Refusal by coroner or other judical officer to allow donation for forensic reasons | **POTENTIAL DBD DONOR**<br>A person whose clinical condition is suspected to fulfill brain death criteria. |
| ⬇ | | ⬇ |
| **ELIGIBLE DCD DONOR**<br>A medicaly suitable person who has been declared dead based on the irreversible absence of circulatory and respiratory functions as stipulated by the law of the relevant jurisdiction within a time frame that enables organ recovery. | | **ELIGIBLE DBD DONOR**<br>A medicaly suitable person who has been declared dead based on neurologic criteria as stipulated by the law of the relevant jurisdiction. |
| ⬇ | | ⬇ |
| **ACTUAL DCD DONOR**<br>A consented eligible donor:<br>**A.** In whom operative incision was made with the intenti of organ recovery for the purpose of transplantation. **OR**<br>**B.** From whom at least one organ was recovered for the purpose of transplantation. | | **ACTUAL DBD DONOR**<br>A consented eligible donor:<br>**A.** In whom operative incision was made with the intenti of organ recovery for the purpose of transplantation. **OR**<br>**B.** From whom at least one organ was recovered for the purpose of transplantation. |
| ⬇ | | ⬇ |
| **UTILIZED DCD DONOR**<br>An actual donor from whom at least one organ was transplanted. | | **UTILIZED DBD DONOR**<br>An actual donor from whom at least one organ was transplanted. |

**The "dead donor rule" must be respected. That is, patients may only become donors after death, and the recovery of organs must not cause a donor's death.**

# NUMBER OF DECEASED DONORS

In 2023, Slovenian donor hospitals acquired 65 actual deceased donors who were medically suitable and for whom family consent had been obtained. The data above demonstrate the number of actual deceased donors in Slovenia compared to selected countries around the world. Below are the details of the number of utilized deceased donors. Compared to Eurotransplant member countries, Slovenia ranks third in the number of utilized deceased donors per million people (PMP) in 2023. The result is significantly higher than the Eurotransplant average.

***Number of actual deceased donors (DD) per million people (PMP) in Slovenia in 2023 and a comparison with selected world countries****

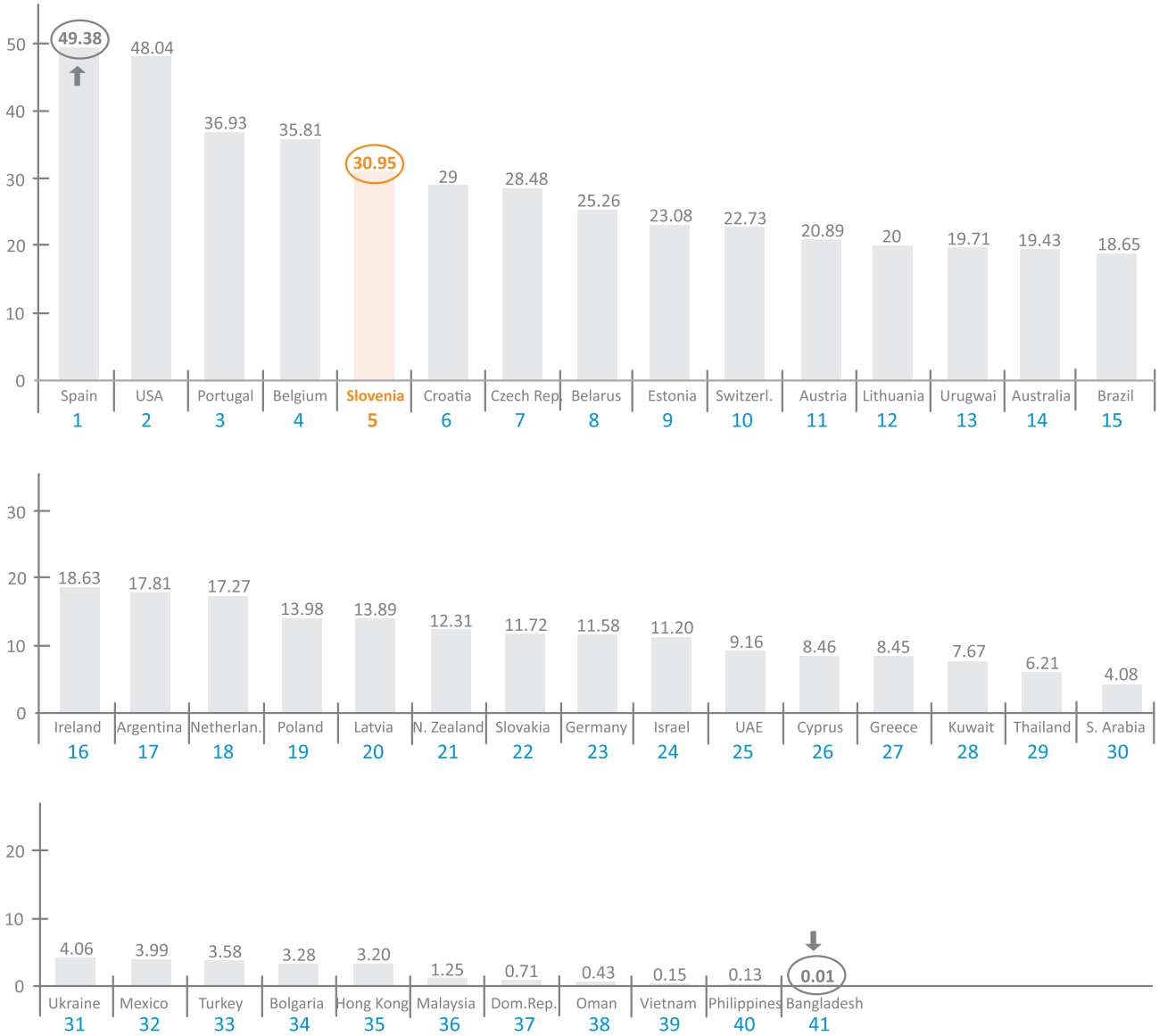
*we included the countries that submitted data for 2023 to Irodat by April 2024.

| | Country | No. of DD/PMP 2023 |
|---|---|---|
| 1. | Spain | 49.38 |
| 2. | USA | 48.04 |
| 3. | Portugal | 36.93 |
| 4. | Belgium | 35.81 |
| **5.** | **Slovenia** | **30.95** |
| 6. | Croatia | 29 |
| 7. | Czech Republic | 28.48 |
| 8. | Belarus | 25.26 |
| 9. | Estonia | 23.08 |
| 10. | Switzerland | 22.73 |
| 11. | Austria | 20.89 |
| 12. | Lithuania | 20 |
| 13. | Uruguay | 19.71 |
| 14. | Australia | 19.43 |
| 15. | Brazil | 18.65 |
| 16. | Ireland | 18.63 |
| 17. | Argentina | 17.81 |
| 18. | Netherlands | 17.27 |
| 19. | Poland | 13.98 |
| 20. | Latvia | 13.89 |
| 21. | New Zealand | 12.31 |
| 22. | Slovakia | 11.72 |
| 23. | Germany | 11.58 |

| | Country | No. of DD/PMP 2023 |
|---|---|---|
| 24. | Israel | 11.2 |
| 25. | UAE | 9.16 |
| 26. | Cyprus | 8.46 |
| 27. | Greece | 8.45 |
| 28. | Kuwait | 7.67 |
| 29. | Thailand | 6.21 |
| 30. | Saudi Arabia | 4.08 |
| 31. | Ukraine | 4.06 |
| 32. | Mexico | 3.99 |
| 33. | Turkey | 3.58 |
| 34. | Bulgaria | 3.28 |
| 35. | Hong Kong | 3.20 |
| 36. | Malaysia | 1.25 |
| 37. | Dominican Republic | 0.71 |
| 38. | Oman | 0.43 |
| 39. | Vietnam | 0.15 |
| 40. | Philippines | 0.13 |
| 41. | Bangladesh | 0.01 |

*Source: IRODaT, International Registry in Organ Donation and Transplantation. Preliminary numbers 2023, April 2024.*

## *Number of actual deceased donors (DD) per million people (PMP) in Slovenia in 2023 and a comparison with selected world countries**



## *Number of utilized deceased donors (DD) per million people (PMP) in Slovenia in 2023 and a comparison with all Eurotransplant countries*

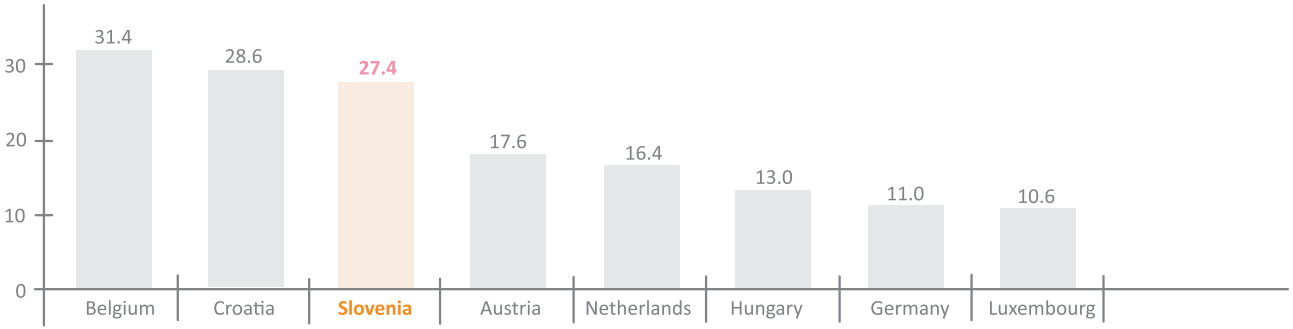
| | Slovenia | Eurotransplant |
|---|---|---|
| Number of DD | **58** | 2,079 |
| DD/PMP | **27.4** | 14.7 |

*Source: http://statistics.eurotransplant.org/*

## *Number of utilized deceased donors per million people (DD/PMP) and a comparison with other Eurotransplant countries in 2023*

| COUNTRY | No. of DD/PMP 2023 |
|---|---|
| 1. Belgium | 31.4 |
| 2. Croatia | 28.6 |
| **3. Slovenia** | **27.4** |
| 4. Austria | 17.6 |
| 5. Netherlands | 16.4 |
| 6. Hungary | 13.0 |
| 7. Germany | 11.0 |
| 8. Luxembourg | 10.6 |

*Source: http://statistics.eurotransplant.org/*



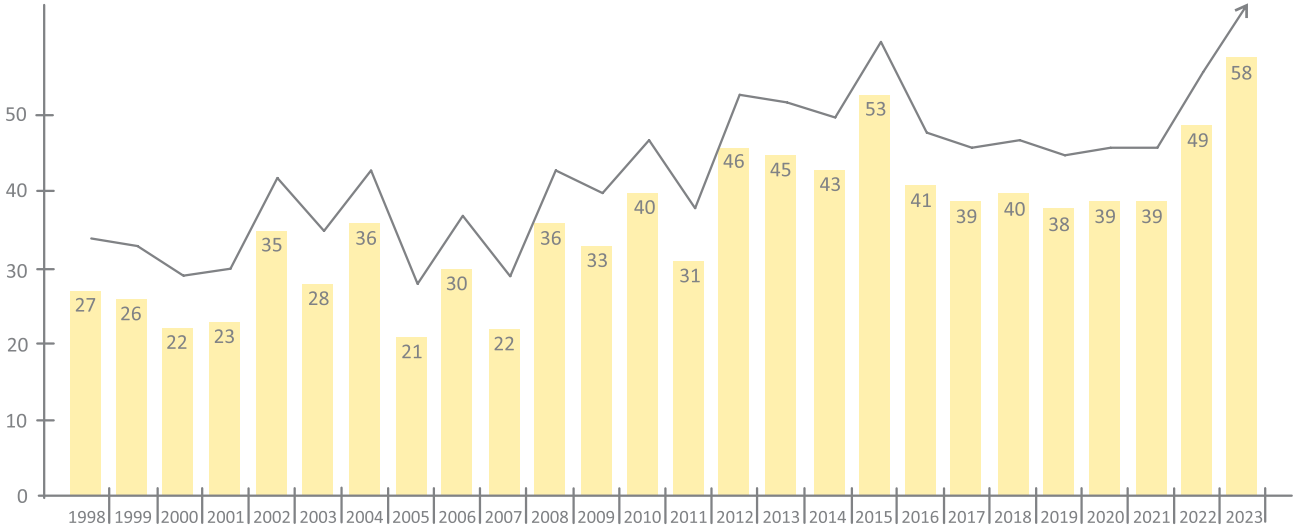
## *Number of utilized deceased donors (DD) and number of utilized deceased donors per million people (DD/PMP) in Slovenia in the 1998–2023 period*

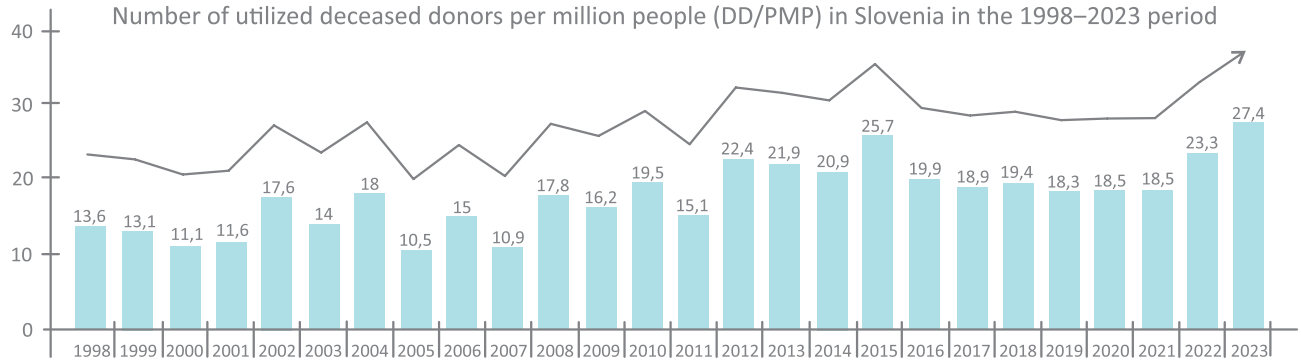
| Year | Number of DD | Number of DD/PMP 2023 |
|---|---|---|
| 1998 | 27 | 13.6 |
| 1999 | 26 | 13.1 |
| 2000 | 22 | 11.1 |
| 2001 | 23 | 11.6 |
| 2002 | 35 | 17.6 |
| 2003 | 28 | 14 |
| 2004 | 36 | 18 |
| 2005 | 21 | 10.5 |
| 2006 | 30 | 15 |
| 2007 | 22 | 10.9 |
| 2008 | 36 | 17.8 |
| 2009 | 33 | 16.2 |
| 2010 | 40 | 19.5 |
| 2011 | 31 | 15.1 |
| 2012 | 46 | 22.4 |

| Year | Number of DD | Number of DD/PMP 2023 |
|---|---|---|
| 2013 | 45 | 21.9 |
| 2014 | 43 | 20.9 |
| 2015 | 53 | 25.7 |
| 2016 | 41 | 19.9 |
| 2017 | 39 | 18.9 |
| 2018 | 40 | 19.4 |
| 2019 | 38 | 18.3 |
| 2020 | 39 | 18.5 |
| 2021 | 39 | 18.5 |
| 2022 | 49 | 23.3 |
| 2023 | 58 | 27.4 |
| **Total 1998—2023** | **940** | **17.66** |

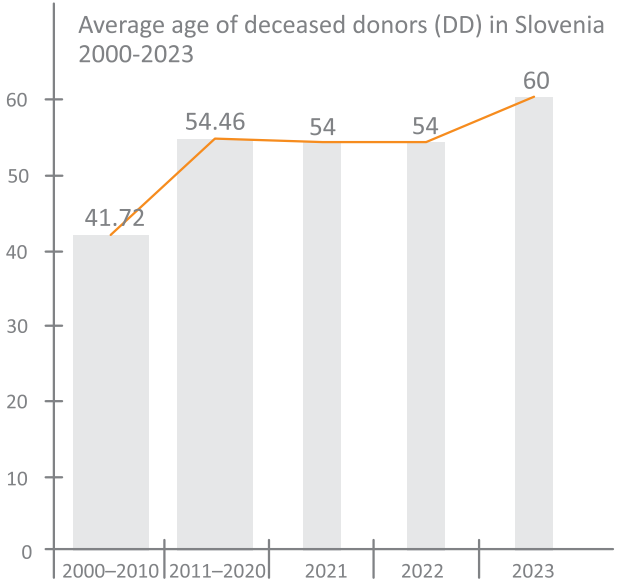
*Source: http://statistics.eurotransplant.org/*

## *Number of utilized deceased donors (DD) and number of utilized deceased donors per million people (DD/PMP) in Slovenia in the 1998–2023 period*






## *Average age of deceased donors (DD) in Slovenia 2000-2023*




| Period/year | Average age of DD |
|---|---|
| 2000–2010 | 41.72 |
| 2011–2020 | 54.46 |
| 2021 | 54 |
| 2022 | 54 |
| 2023 | 60 |

Average number of organs procured per deceased donor (DD) in Slovenia 2014-2023

| Year | Number of organs/DD |
|---|---|
| 2014 | 3.4 |
| 2015 | 3.2 |
| 2016 | 3.3 |
| 2017 | 3.7 |
| 2018 | 3.6 |
| 2019 | 3.5 |
| 2020 | 3.5 |
| 2021 | 3.2 |
| 2022 | 3.5 |
| 2023 | 3.2 |

*Sources:*

*- Danica Avsec, Jana Šimenc. Twenty Years of Deceased Organ Donation in Slovenia: Steps Towards Progress in Quality, Safety, and Effectiveness. American Journal of Health Research. Vol. 9, No. 3, 2021, pp. 82-88. doi: 10.11648/j.ajhr.20210903.13;*

*- Archive of Slovenija-transplant.*

# NATIONAL DONOR REGISTER

Every Slovenian citizen has the right to autonomously decide on post-mortem organ and tissue donation during their lifetime. Since June 2017, a possibility to declare against organ donation has been implemented. Individual decision is formally confirmed when it is entered in the national donor register, which was established back in 2004. The donor declaration can be signed electronically with a digital signature on the eAdministration ("eUprava") portal (https://e-uprava.gov.si/) or personally at one of the many authorised donor registration points around Slovenia (a detailed list is published at www.slovenija-transplant.si).

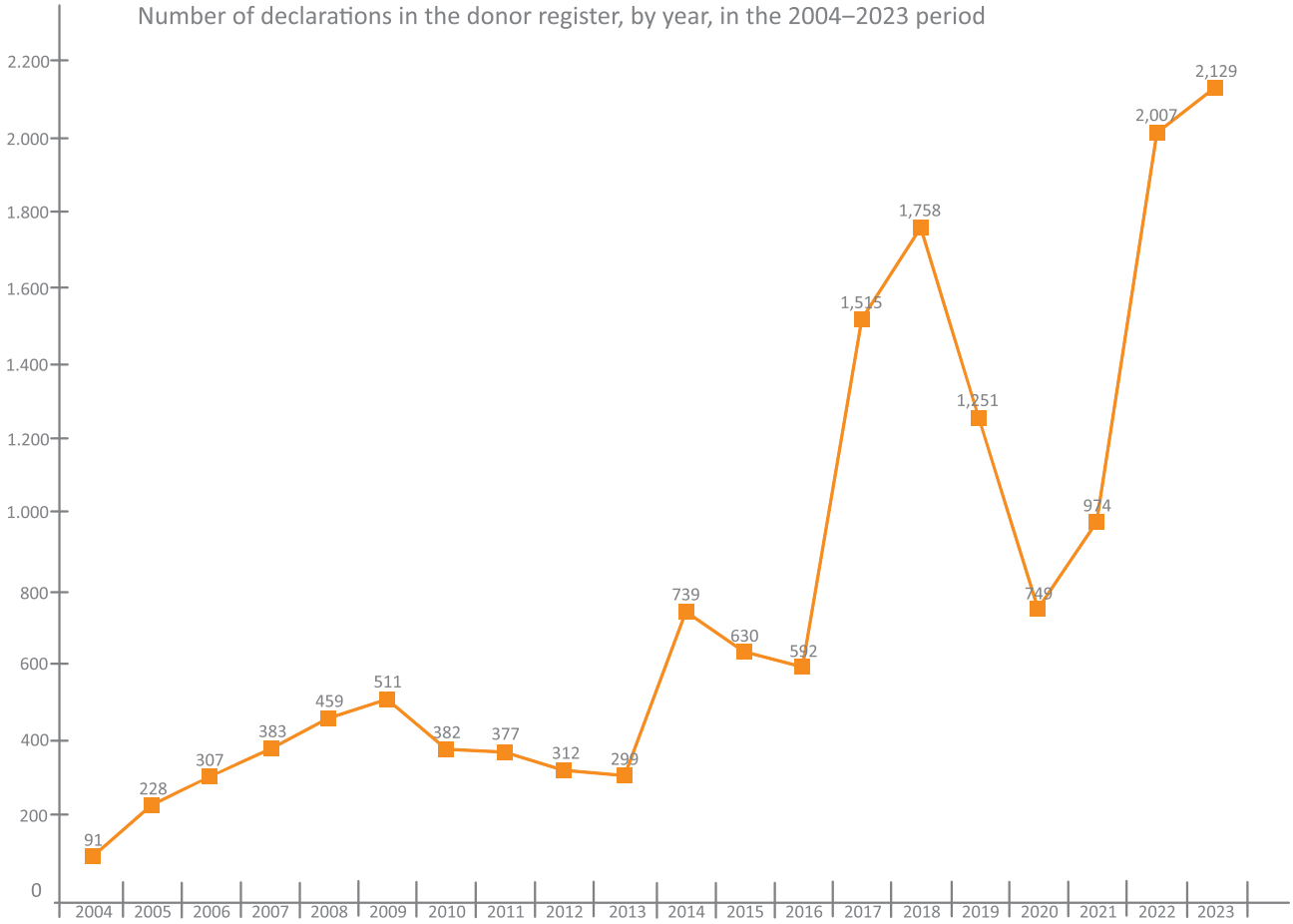
In 2023, we collected the highest number of declarations so far in a single year. A total of 2,129 declarations was collected (2,021 FOR and 28 AGAINST). As at 31 December 2023, 15,693 declarations were entered on the register (15,583 FOR and 110 AGAINST).

***Number of declarations in the donor register, by year, in the 2004–2023***

| Year | No. of declarations |
|---|---|
| 2004 | 91 |
| 2005 | 228 |
| 2006 | 307 |
| 2007 | 383 |
| 2008 | 459 |
| 2009 | 511 |
| 2010 | 382 |
| 2011 | 377 |
| 2012 | 312 |
| 2013 | 299 |
| 2014 | 739 |

| Year | No. of declarations |
|---|---|
| 2015 | 630 |
| 2016 | 592 |
| 2017 | 1,515 |
| 2018 | 1,758 |
| 2019 | 1,251 |
| 2020 | 749 |
| 2021 | 974 |
| 2022 | 2,007 |
| 2023 | 2,129 |
| **Total** | **15,693** |

*Source: arhiv Slovenija-transplanta*

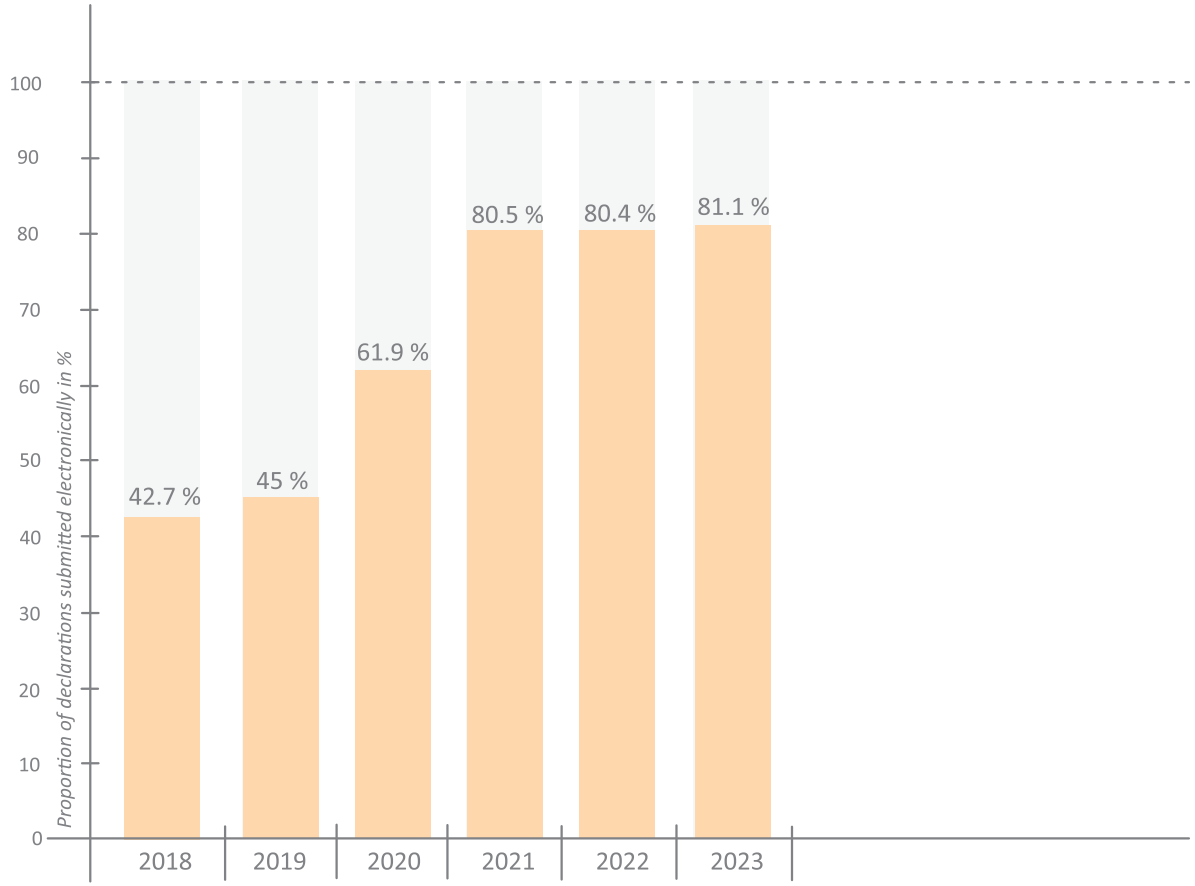



*Source: Archive of Slovenija-transplant*

### *Proportion of declarations submitted electronically*

Since 2018, when it became possible to submit electronic declaration, 5.904 people have used this option. In 2023, 81% of declarations were submitted electronically. The total percentage of declarations submitted electronically and the percentage by year since the introduction of this option are shown below. The data shows that an increasing proportion of people use electronic option of registration each year.

## *Proportion of declarations submitted electronically in the 2018-2023 period*

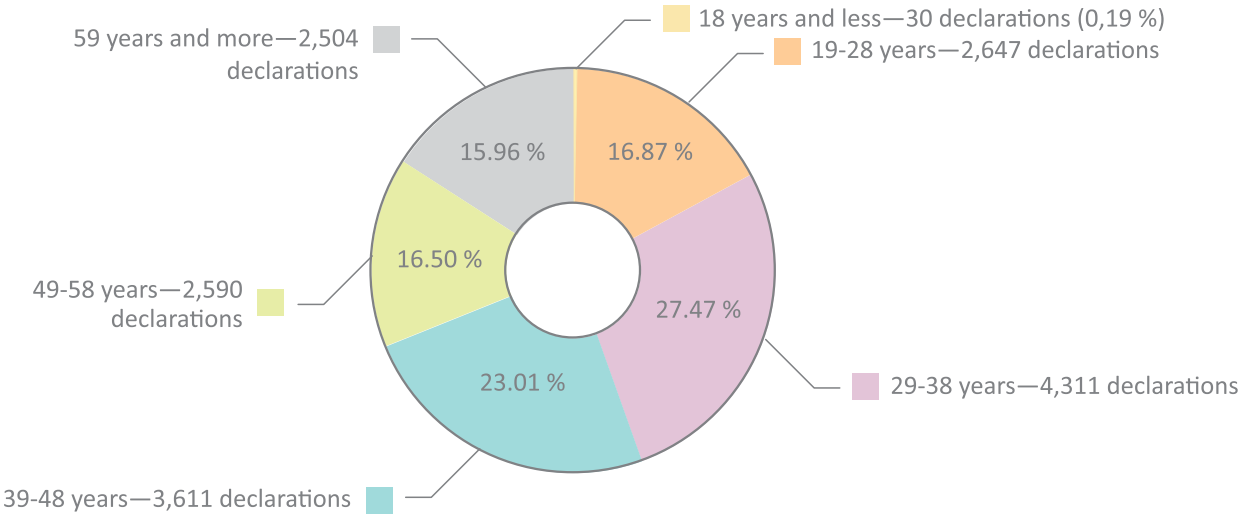



*Source: Archive of Slovenija-transplant*

### *Age of registered persons*

The average age of all registered persons is currently 43.05 years. The data on the number and percentage of registered persons by age group are listed below. Most registered donors belong to the 29-48 age group.

### *Registered persons by age group 2004-2023*




*Source: Archive of Slovenija-transplant*

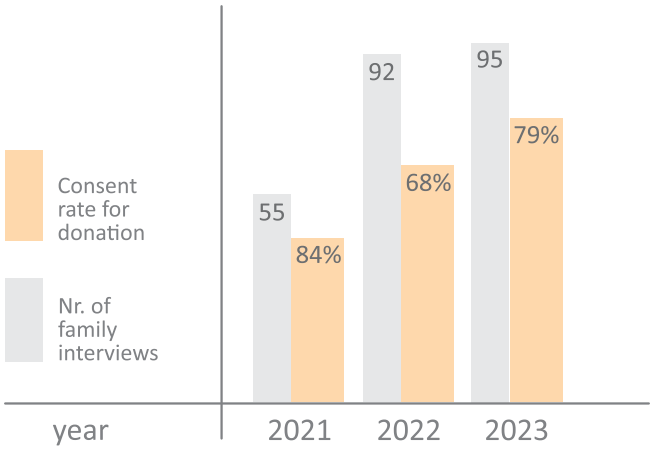
# PERCENTAGE OF CONSENT FOR DONATION

Organ donation is not possible without the consent of the relatives of the potential donor. It is only after the death has been confirmed and the time of death registered that the transplantation co-ordinator checks the donor register. Despite knowing about the designation, a conversation with the deceased person's close relatives about donation is conducted. During this conversation, transplant coordinators try to determine what the deceased person's position was regarding after-death organ donation. If consent is given, medical data important for the donation is obtained in the further course of the conversation.

If the will of the deceased is unknown, the close relatives make the decision. In this case, the conversation is significantly more difficult for the medical staff and especially for the family. All procedures are carried out with a high degree of sensitivity, understanding of the extremely difficult emotional circumstances and in line with the legislative provisions and medical doctrine.

In 2023, 79% of relatives agreed to organ donation after the death of a loved one, 11% more compared to 2022.

***Percentage of consent for donation in the 1998–2023 period***



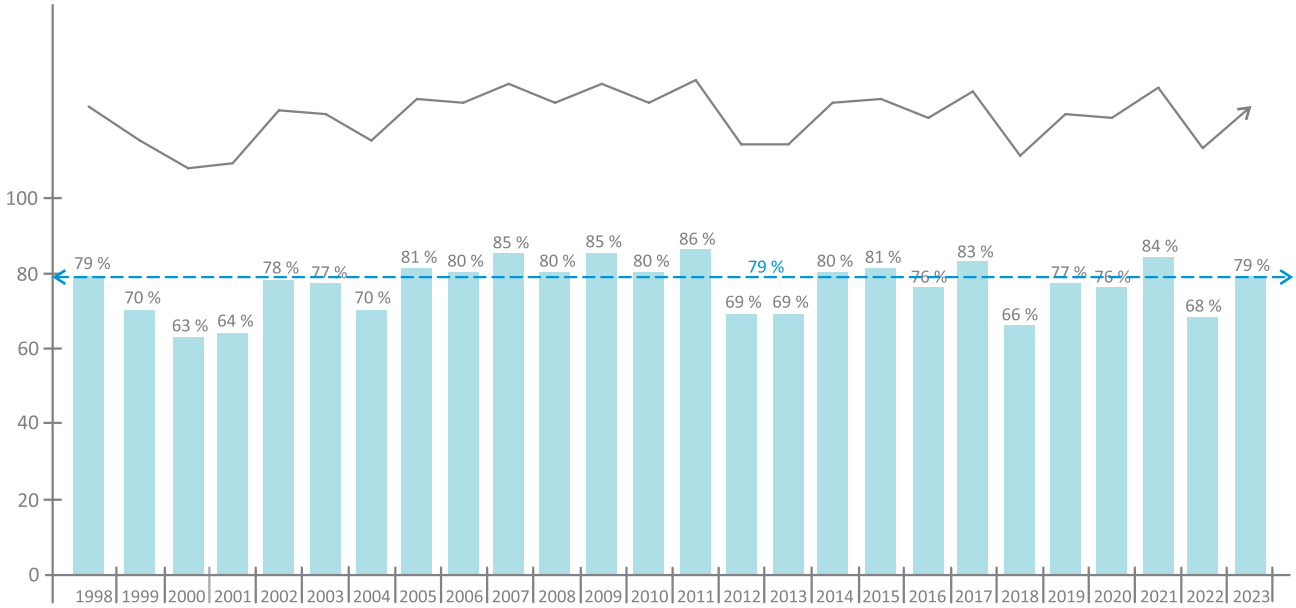

*Source: Archive of Slovenija-transplant*

## *Percentage of consent for donation in the 1998–2023 period*

| Year | % of consent |
|---|---|
| 1998 | 79 |
| 1999 | 70 |
| 2000 | 63 |
| 2001 | 64 |
| 2002 | 78 |
| 2003 | 77 |
| 2004 | 70 |
| 2005 | 81 |
| 2006 | 80 |
| 2007 | 85 |
| 2008 | 80 |
| 2009 | 85 |
| 2010 | 80 |

| Year | % of consent |
|---|---|
| 2011 | 86 |
| 2012 | 69 |
| 2013 | 69 |
| 2014 | 80 |
| 2015 | 81 |
| 2016 | 76 |
| 2017 | 83 |
| 2018 | 66 |
| 2019 | 77 |
| 2020 | 76 |
| 2021 | 84 |
| 2022 | 68 |
| 2023 | 79 |

*Source: Archive of Slovenija-transplant*



# ACTIVITIES IN THE DONOR CENTRES

Eleven donor hospitals are active in the Slovenian donor programme: the Ljubljana UMC and Maribor UMC and the general hospitals in Celje, Murska Sobota, Nova Gorica, Izola, Ptuj, Novo mesto, Slovenj Gradec, Jesenice and Brežice.

The following activities are performed in a donor centre:

- identification of potential deceased donors;
- diagnostics of brain death;
- evaluation of the suitability of organs and tissues for removal and transplantation;
- communication with the relatives of the deceased about the possibility of organ donation;
- maintenance of the functioning of deceased donors' organs – in intensive care and during organ removal; and
- participation in organ- and tissue-removal procedures performed by Slovenian and foreign teams of surgeons.

The highest number of donors is provided by the UMC Ljubljana, where the largest intensive care units are located. In 2023, 24 utilized deceased donors were procured there. Good results were also achieved by UMC Maribor which in 2023 procured 10 utilized deceased donors, by Celje GH with 11 utilized donors and by Murska Sobota GH with 5 utilized donors. Particularly noteworthy are the smallest donor hospital, Brežice GH, which procured 3 deceased donors, and Slovenj Gradec GH with 2 deceased donors. Jesenice, Ptuj and Nova Gorica GH each procured 1 utilized deceased donor.

## *Number of eligible and utilized deceased donors (DD) by individual donor hospitals in 2023*

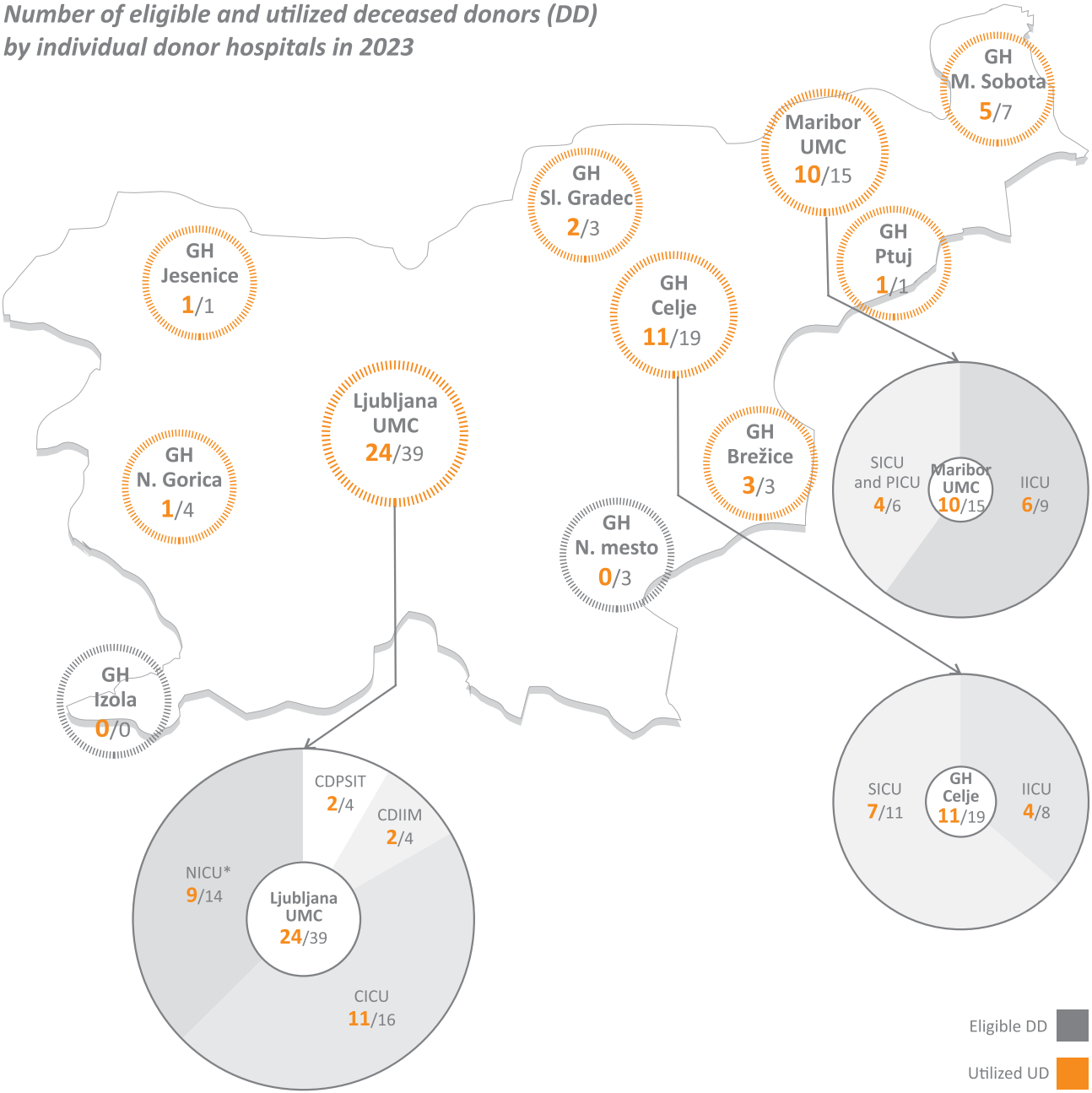
| Donor hospital | Eligible DD | Utilized UD |
|---|---|---|
| **Ljubljana UMC total** | **39** | **24** |
| - of which NICU* | 14 | 9 |
| - of which CICU | 16 | 11 |
| - of which CDIIM | 4 | 2 |
| - of which CDPSIT | 4 | 2 |
| **Maribor UMC total**** | **15** | **10** |
| - of which SICU and PICU | 6 | 4 |
| - of which IICU | 9 | 6 |
| **GH Celje total** | **19** | **11** |
| - of which SICU | 11 | 7 |
| - of which IICU | 8 | 4 |
| **GH Murska Sobota** | **7** | **5** |
| **GH Slovenj Gradec** | **3** | **2** |
| **GH Nova Gorica** | **4** | **1** |
| **GH Ptuj** | **1** | **1** |
| **GH Brežice** | **3** | **3** |
| **GH Novo mesto** | **3** | **0** |
| **GH Izola** | **0** | **0** |
| **GH Jesenice** | **1** | **1** |
| **Total** | **95** | **58** |

*Source: Archive of Slovenija-transplant*

*NICU – Neurological Intensive Care Unit, CICU – Central Intensive Care Unit, CDIIM – Clinical Department of Internal Intensive Medicine, CDPSIT – Clinical Department of Paediatric Surgery and Intensive Therapy, CVICU – Cardiovascular Intensive Care Unit, RC – Respiratory Centre

**SICU – Surgical Intensive Care Unit; IICU – Internal Intensive Care Unit, PICU- Pediatric Intensive Care Unit

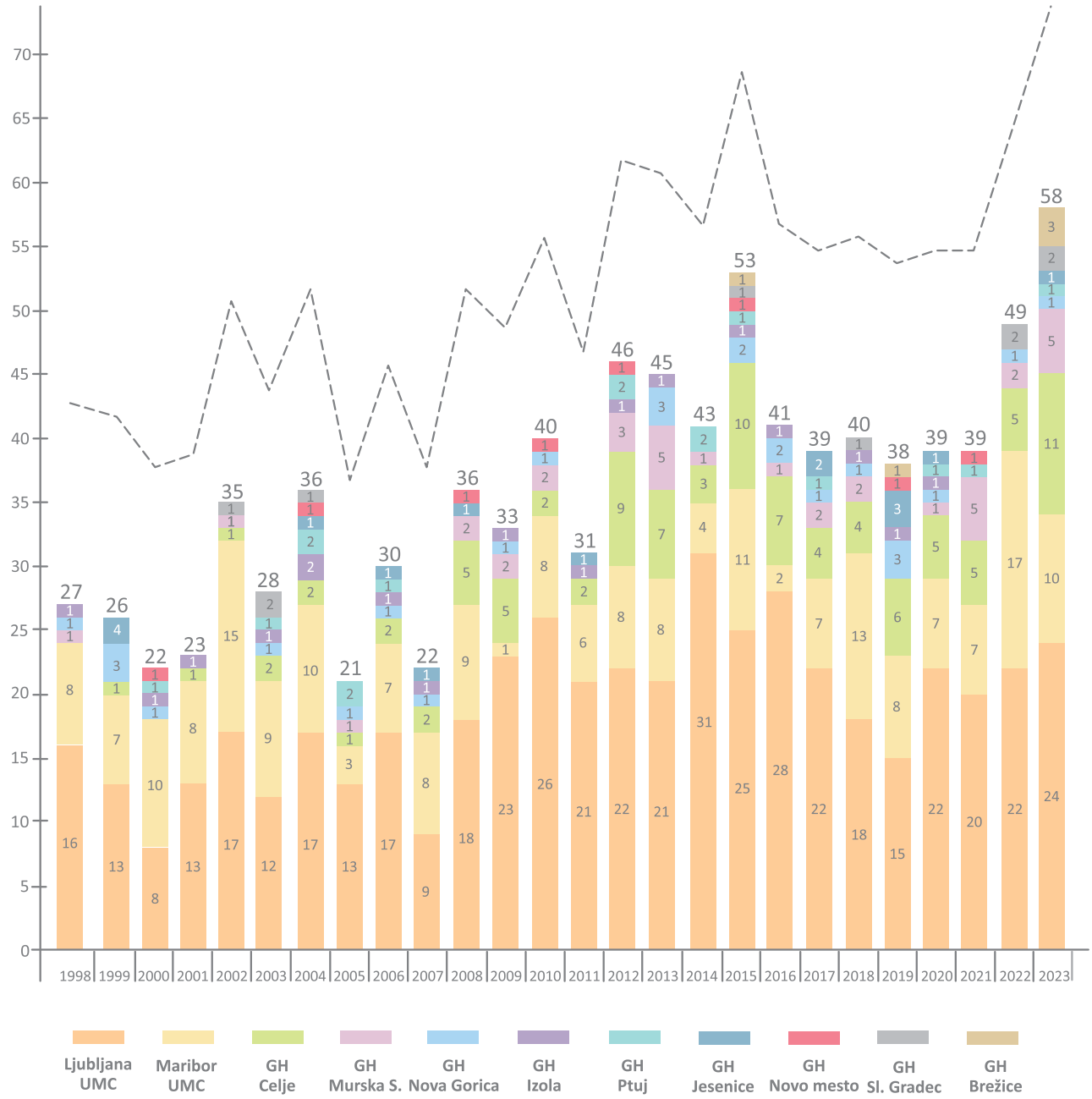
***Number of eligible and utilized deceased donors (DD) by individual donor hospitals in 2023***



## *Number of utilised deceased donors by donor centres in the 1998–2023 period*

| Year | Ljubljana UMC | Maribor UMC | GH Celje | GH Murska S. | GH Nova Gorica | GH Izola | GH Ptuj | GH Jesenice | GH Sl. Gradec | GH Novo mesto | GH Brežice |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1998 | 16 | 8 | | 1 | 1 | 1 | | | | | |
| 1999 | 13 | 7 | 1 | | 3 | | | 2 | | | |
| 2000 | 8 | 10 | | | 1 | 1 | 1 | | | 1 | |
| 2001 | 13 | 8 | 1 | | | 1 | | | 1 | | |
| 2002 | 17 | 15 | 1 | 1 | | | | | 2 | | |
| 2003 | 12 | 9 | 2 | | 1 | 1 | 1 | | 1 | | |
| 2004 | 17 | 10 | 2 | | | 2 | 2 | 1 | | 1 | |
| 2005 | 13 | 3 | 1 | 1 | 1 | | 2 | | | | |
| 2006 | 17 | 7 | 2 | | 1 | 1 | 1 | 1 | | | |
| 2007 | 9 | 8 | 2 | | 1 | 1 | | 1 | | | |
| 2008 | 18 | 9 | 5 | 2 | | | | 1 | | 1 | |
| 2009 | 23 | 1 | 5 | 2 | 1 | 1 | | | | | |
| 2010 | 26 | 8 | 2 | 2 | 1 | | | | | 1 | |
| 2011 | 21 | 6 | 2 | | | 1 | | 1 | | | |
| 2012 | 22 | 8 | 9 | 3 | | 1 | 2 | | | 1 | |
| 2013 | 21 | 8 | 7 | 5 | 3 | 1 | | | | | |
| 2014 | 31 | 4 | 3 | 1 | 1 | | 2 | 1 | 1 | | |
| 2015 | 25 | 11 | 10 | | 2 | 1 | 1 | | | 1 | 1 |
| 2016 | 28 | 2 | 7 | 1 | 2 | 1 | | | | | |
| 2017 | 22 | 7 | 4 | 2 | 1 | | 1 | 2 | 1 | | |
| 2018 | 18 | 13 | 4 | 2 | 1 | 1 | | | | | |
| 2019 | 15 | 8 | 6 | | 3 | 1 | | 3 | | 1 | 1 |
| 2020 | 22 | 7 | 5 | 1 | 1 | 1 | 1 | 1 | | | |
| 2021 | 20 | 7 | 5 | 5 | | | 1 | | 2 | 1 | |
| 2022 | 22 | 17 | 5 | 2 | 1 | | | | 2 | | |
| 2023 | 24 | 10 | 11 | 5 | 1 | | 1 | 1 | | | 3 |
| **Total** | **493** | **211** | **102** | **36** | **27** | **17** | **16** | **15** | **10** | **8** | **5** |

*Source: Archive of Slovenija-transplant*


70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
27 26 22 23 35 28 36 21 30 22 36 33 40 31 46 45 43 53 41 39 40 38 39 39 49 58
Ljubljana UMC
Maribor UMC
GH Celje
GH Murska S.
GH Nova Gorica
GH Izola
GH Ptuj
GH Jesenice
GH Novo mesto
GH Sl. Gradec
GH Brežice

# POTENTIAL AND REALISATION IN DONOR HOSPITALS

The donation potential of an individual donor hospital is expressed as the percentage share of brain-dead donors of the total number of deceased persons in the intensive care unit (ICU). It indicates the number of deaths where the diagnostic of brain death was completed. The potential is directly associated with the identification of eligible donors in ICUs.

Realisation in the donation process indicates the number of eligible donors (proven brain death) who became actual donors. It is expressed as the share of actual donors of the total number of deaths due to brain death in the ICUs.

***Potential and realisation in donor hospitals in 2023***

| Donor hospital | All deaths in the ICU | PD | ED | *Potential | Available | AD | **Realisation | Available |
|---|---|---|---|---|---|---|---|---|
| Ljubljana UMC | 358 | 53 | 39 | 10.9 % | 13.7 % | 27 | 69 % | 65 % |
| Maribor UMC | 206 | 33 | 15 | 7.3 % | 13.7 % | 11 | 73 % | 65 % |
| GH Celje | 169 | 25 | 19 | 11.2 % | 8.3 % | 12 | 63 % | 55 % |
| GH Novo mesto | 118 | 3 | 3 | 2.5 % | 8.3 % | 1 | 33 % | 55 % |
| GH Murska Sobota | 96 | 12 | 7 | 7.3 % | 8.3 % | 6 | 86 % | 55 % |
| GH Nova Gorica | 82 | 6 | 4 | 4.9 % | 8.3 % | 1 | 25 % | 55 % |
| GH Ptuj | 66 | 3 | 1 | 1.5 % | 8.3 % | 1 | 100 % | 55 % |
| GH Izola | 54 | 2 | 0 | 0.0 % | 8.3 % | 0 | / | 55 % |
| GH Slovenj Gradec | 42 | 5 | 3 | 7.1 % | 8.3 % | 2 | 67 % | 55 % |
| GH Jesenice | 29 | 2 | 1 | 3.4 % | 8.3 % | 1 | 100 % | 55 % |
| GH Brežice | 27 | 3 | 3 | 11.1 % | 8.3 % | 3 | 100 % | 55 % |

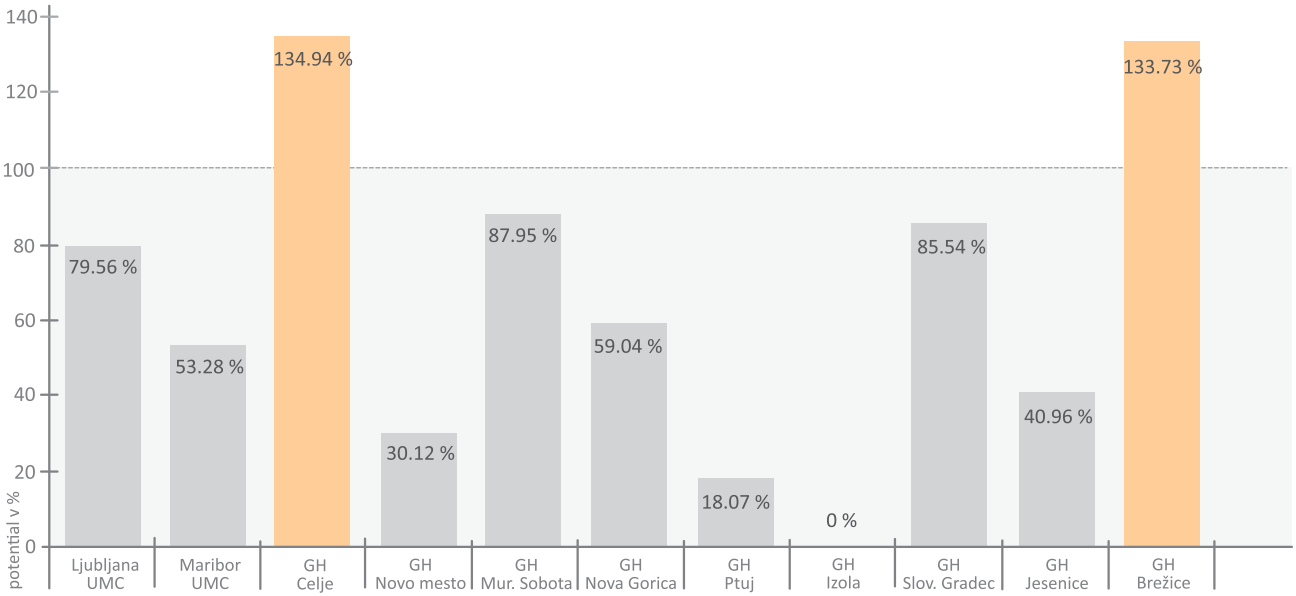
*Source: Archive of Slovenija-transplant*

Legend:
ICU – intensive care unit
PD – potential donor
ED – eligible donor (proven brain death)
AD – actual donor (relatives' consent, organ removal)
Potential – % of brain-dead patients in total number of deceased persons in the ICU = % ED/total deaths in the ICU
Realisation – % of actual donors in total number of brain-dead patients = % AD/ED

*As expected, a donor hospital's potential is higher among hospitals which operate their own neurosurgical unit and can even reach up to 13.7% (available potential).
In 2023, UMC Ljubljana once again came close to its potential and achieved practically the same potential as in 2022 (11.1 %). They had a worse year at UMC Maribor. At 7.3 %, they achieved just over half of their potential. The reasons for the lower potential achieved lie in the overworking of staff and the lack of awareness of treating physicians. With the strategic measures taken by the hospital coordinators, the potential increased significantly after the first quarter of 2024.
In hospitals without their own neurosurgical unit, the available donation potential reaches up to 8.3%. In 2023, 2 hospitals clearly stand out from all others, Celje GH with 11.2% and Brežice GH with 11.1% potential, which is well above the expected results. Murska Sobota GH with 7.3% and Slovenj Gradec GH with 7.1% came very close to their potential. An important contribution was also made by the following hospitals: Nova Gorica GH, Jesenice GH, Novo mesto GH and Ptuj GH, while in Izola GH no eligible donor was detected and only two patients with severe brain injuries or lesions were treated.

** In 2023, the available realisation was exceeded by 8 donor hospitals with at least one actual donor. The refusal rate was significantly lower in most hospitals compared to 2022 (in UMC Ljubljana from 38% to 18% and in UMC Maribor from 32% to 20%).
The results in the area of realisation are so good because the teams responsible for identifying donors in the intensive care units and, in the case of some donor hospitals, also in the emergency unit as part of the ICOD programme mentioned above, did an excellent job in 2023. Other reasons for the good results are the low number of medical contraindications to organ donation (10%) and the lower overall family refusal rate (21%).
In Nova Gorica GH and Novo mesto GH the realisation rate was only 25% and 33% respectively, and the refusal of relatives to donate was as high as 50% and 66% respectively.
Some deviations were found at low values of potential, e.g. in the Ptuj, Jesenice and Brežice general hospitals, where 100% realisation was achieved in all cases where there were no medical contraindications for donation and the relatives gave their consent. In such cases, the situation over a period of several years is more accurate and in line with the expected results.
In hospitals where there were no proven brain deaths in 2023 (Izola GH) and no actual donors, the potential and the realisation were both 0% or un-measurable (/).

## *Reached potential in donor hospitals in 2023*




## *List of authorised persons (hospital transplantation coordinators) in charge of the development, implementation and functioning of the donor programme in individual donor centres in 2023:*

| Donor hospital | Authorised persons |
|---|---|
| Ljubljana UMC | Chief Phys. **Rade Stanić**, *MD, Msc* |
| Maribor UMC | **Natalija Krope**, *MD*/**Iva Cestar**, *MD* (from Decembre 2023) |
| GH Brežice | **Nataša Pirc**, *MD*/**Igor Đarmati**, *MD* (from May 2023) |
| GH Celje | **Barbara Hudournik**, *MD* |
| GH Izola | **Damjan Polh**, *MD* / **Maja Ivartnik Merkač**, *MD* (from December 2023) |
| GH Jesenice | **Andraž Nastran**, *MD* |
| GH Murska Sobota | Chief Phys. **Daniel Grabar**, *MD*/ **Alja Beznec**, *MD* (from December 2023) |
| GH Nova Gorica | **Edyta Čerkini**, *MD* |
| GH Novo mesto | **Matej Godnič**, *MD* |
| GH Ptuj | **Mateja Prevolšek**, *MD* |
| GH Slovenj Gradec | ***Rok Popič***, *MD* |

# SOLID ORGANS PROCURED FOR THE PURPOSE OF MEDICAL TREATMENT

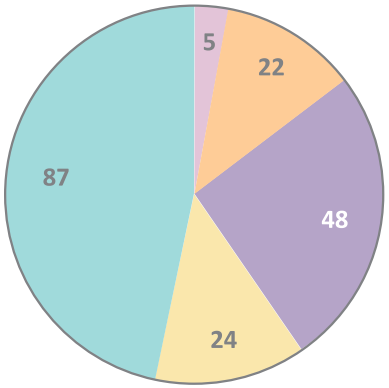
The number of procured organs depends on the number of procured deceased donors, along with the age, any medical contraindications, and appropriate brain-dead donor maintenance. In 2023 we have reached the highest number of deceased donors so far and the work of the hospital transplant coordinators during the maintenance of an eligible donor was exceptional, which meant we also procured more organs. Deceased donors donated 186 organs, namely, the highest number since the beginning of Slovenian donor programme.

Data for 2023 and a comparison with previous years are given below.

***Number of procured organs of Slovenian deceased donors in 2023***

| Kidney | Heart | Liver | Lungs (both lobes) | Pancreas | Total |
|---|---|---|---|---|---|
| 87 | 24 | 48 | 22 | 5 | 186 |

*Source: Archive of Slovenija-transplant*

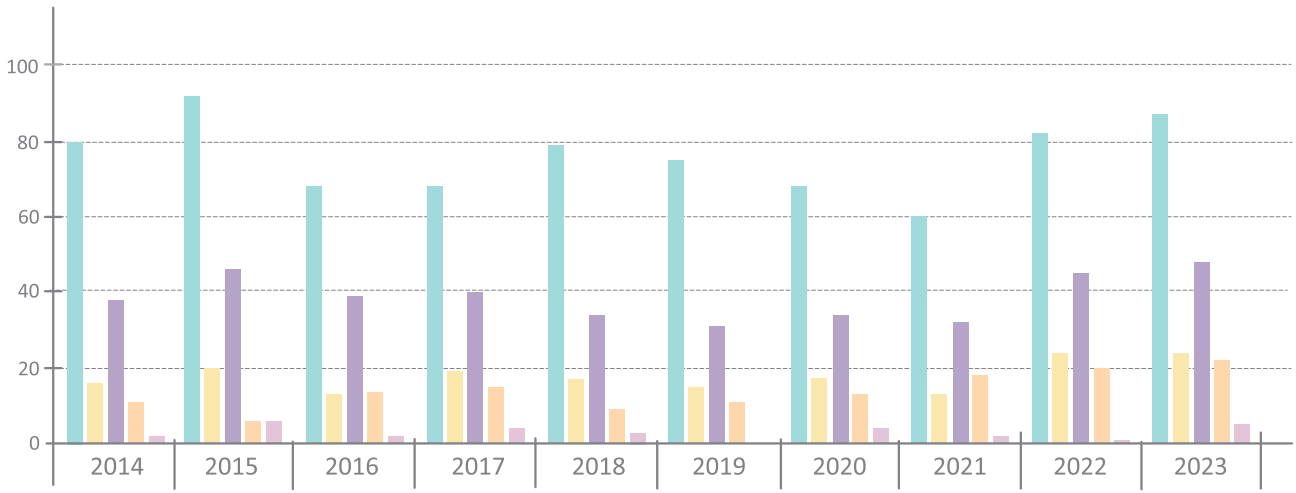


## *Procured organs of Slovenian deceased donors in the 2000–2023 period*

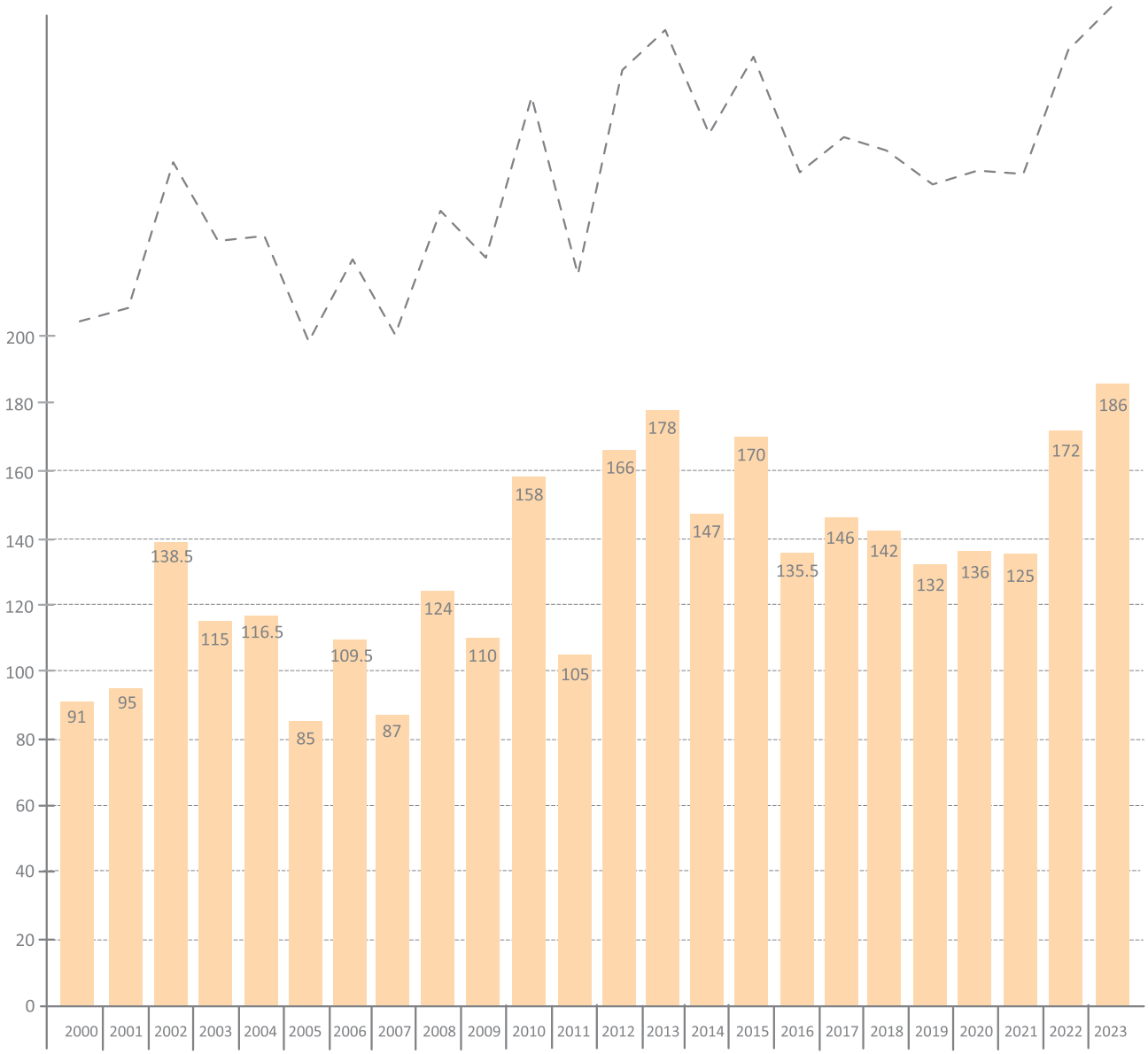
| Year | Kidney | Heart | Liver | Lungs (both lobes) | Pancreas | Total |
|---|---|---|---|---|---|---|
| 2000–2013 | 872 | 234 | 356 | 114.5 | 102 | **1,678.5** |
| 2014 | 80 | 16 | 38 | 11 | 2 | **147** |
| 2015 | 92 | 20 | 46 | 6 | 6 | **170** |
| 2016 | 68 | 13 | 39 | 13.5 | 2 | **135.5** |
| 2017 | 68 | 19 | 40 | 15 | 4 | **146** |
| 2018 | 79 | 17 | 34 | 9 | 3 | **142** |
| 2019 | 75 | 15 | 31 | 11 | 0 | **132** |
| 2020 | 68 | 17 | 34 | 13 | 4 | **136** |
| 2021 | 60 | 13 | 32 | 18 | 2 | **125** |
| 2022 | 82 | 24 | 45 | 20 | 1 | **172** |
| 2023 | 87 | 24 | 48 | 22 | 5 | **186** |
| **Total** | **1,631** | **412** | **743** | **253** | **131** | **3,170** |

*Source: Archive of Slovenija-transplant*

## *Procured organs of Slovenian deceased donors in the 2014–2023 period*



## *Total number of procured organs of Slovenian deceased donors in the 2014–2023 period*



# TRANSPLANTED SOLID ORGANS

There is one transplantation centre in Slovenia – the Ljubljana University Medical Centre – at which programmes for organ transplantation are carried out. The organ distribution system ensures equal access to medical treatment with organ transplantation for all Slovenian citizens. The tasks of the transplantation centre include:

- preparing recipients for inclusion on the waiting list;
- organ transplantation; and
- guiding patients after transplantation.

Since 2014, the transplantation centre has been led by the cardiovascular surgeon Dr Ivan Kneževič, *MD*.

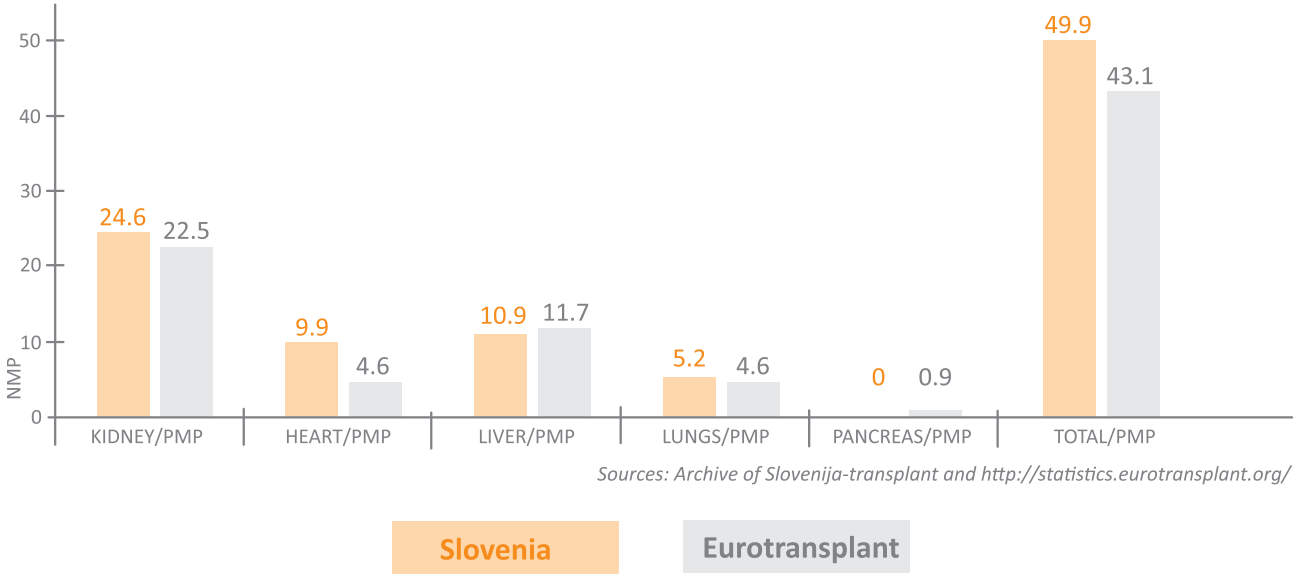
In 2023, 107 organs were transplanted, 106 from deceased donors and one kidney from a living donor. The most frequently transplanted organ is the kidney and we are slightly above the average for Eurotransplant countries in terms of the number of all transplantations from deceased donors per million people. The number of hearts transplanted per million people is significantly higher, where we ranked third in the world in 2023.

Paediatric transplantations are partly performed at the UMC in Ljubljana and for younger children in nearby European transplantation centres (kidneys in Graz, liver in Bergamo). In 2023, two kidneys were transplanted to Slovenian children in Graz and three livers in Bergamo, Italy. The relevant departments at the Ljubljana UMC are responsible for treatment and preparation prior to organ transplantation as well as for the medical treatment and monitoring of patients after transplantation.

***Transplanted solid organs from deceased donors in the Ljubljana UMC in 2023 and a comparison with Eurotransplant – absolute number and per million people (PMP)***

| | Kidney DD | | Heart | | Liver | | Lungs | | Pancreas | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | PMP | No. | PMP | No. | PMP | No. | PMP | No. | PMP | No. | PMP |
| SLO | 51 | 24.6 | 21 | 9.9 | 23 | 10.9 | 11 | 5.2 | 0 | 0 | 106 | 49.6 |
| ET | 3,161 | 22.5 | 645 | 4.6 | 1,539 | 11.7 | 643 | 4.6 | 110 | 0.9 | 6.098 | 43.1 |

## *Transplanted solid organs from deceased donors in the Ljubljana UMC in 2023 and a comparison with Eurotransplant per million people (PMP)*



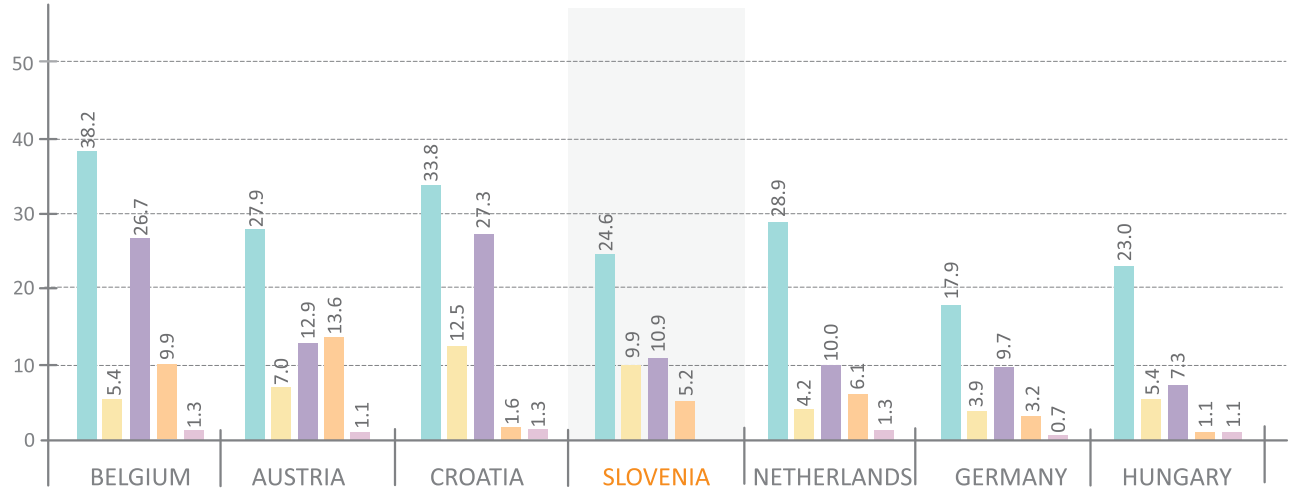

*Sources: Archive of Slovenija-transplant and http://statistics.eurotransplant.org/*

## *Number of transplanted solid organs from deceased donors per million people (PMP) in Slovenia in 2023 and a comparison with the Eurotransplant countries*

| ET country | Kidney | Heart | Liver | Lungs | Pancreas | Number of transplantations/ PMP in 2023 |
|---|---|---|---|---|---|---|
| Belgium | 38.2 | 5.4 | 26.7 | 9.9 | 1.3 | **77.6** |
| Austria | 27.9 | 7.0 | 12.9 | 13.6 | 1.1 | **60.8** |
| Croatia | 33.8 | 12.5 | 27.3 | 1.6 | 1.3 | **74.3** |
| Slovenia | 24.6 | 9.9 | 10.9 | 5.2 | 0 | **49.6** |
| Netherlands | 28.9 | 4.2 | 10.0 | 6.1 | 1.3 | **49.6** |
| Germany | 17.9 | 3.9 | 9.7 | 3.2 | 0.7 | **34.4** |
| Hungary | 23.0 | 5.4 | 7.3 | 1.1 | 1.1 | **36.5** |

*Sources: Archive of Slovenija-transplant and http://statistics.eurotransplant.org/*

***Number of transplanted solid organs from deceased donors per million people (PMP) in Slovenia in 2023 and a comparison with the Eurotransplant countries***



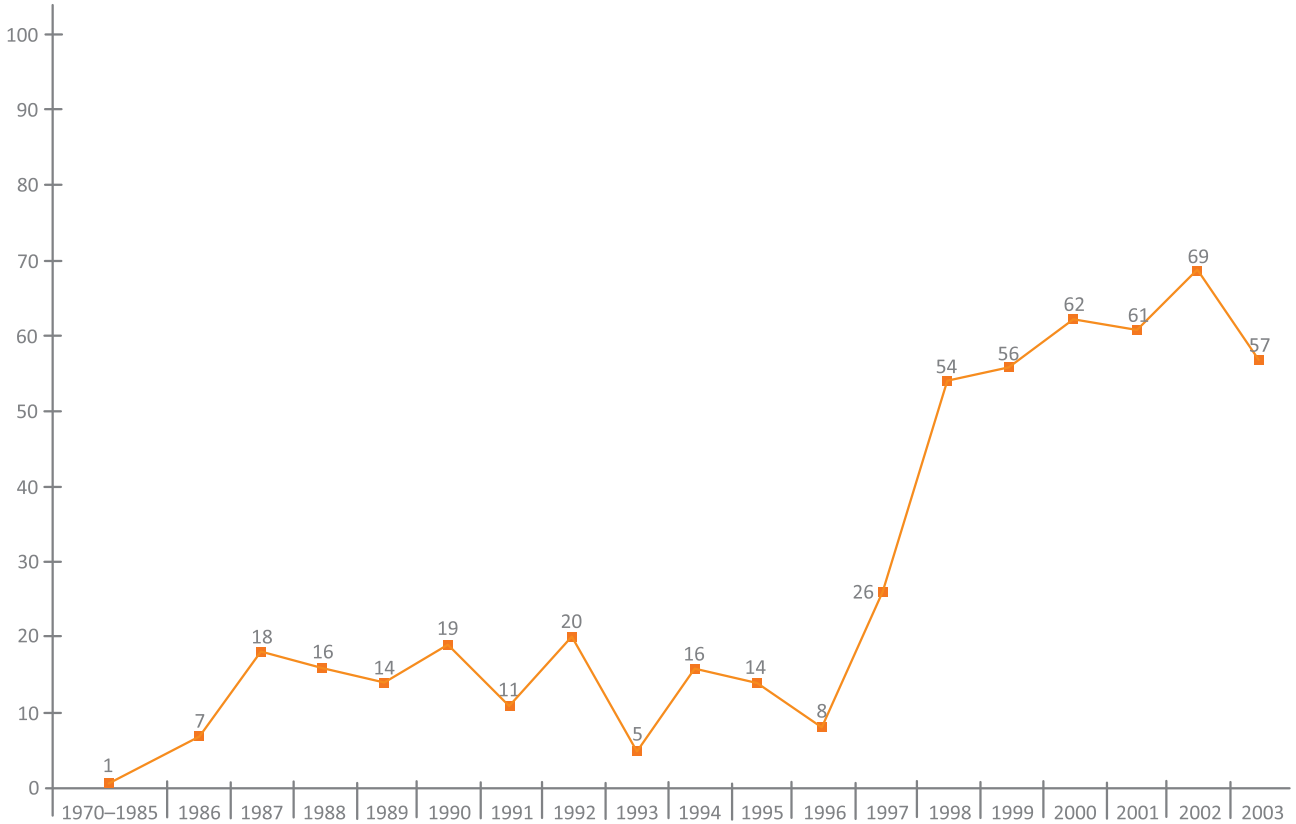
## *Number of transplanted solid organs from deceased donors in Slovenia or to Slovenian patients (abroad) in the 1970–2023 period*

*Source: Archive of Slovenija-transplant*

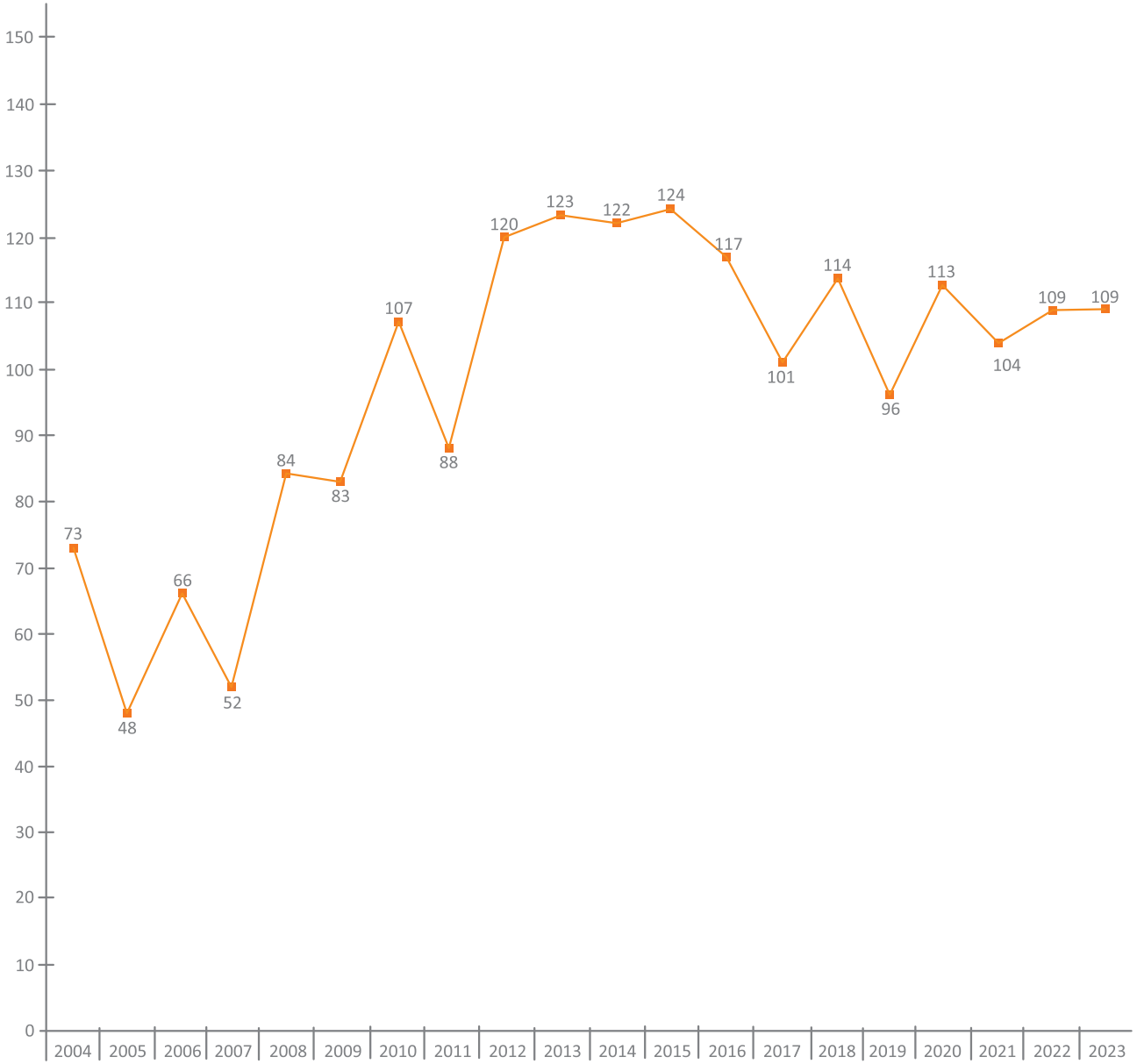
| Year | Kidney | Heart | Liver | Lungs | Pancreas | Total |
|---|---|---|---|---|---|---|
| 1970–1985 | 1 | | | | | **1** |
| 1986 | 7 | | | | | **7** |
| 1987 | 18 | | | | | **18** |
| 1988 | 16 | | | | | **16** |
| 1989 | 14 | | | | | **14** |
| 1990 | 17 | 1 | | | 1 | **19** |
| 1991 | 11 | | | | | **11** |
| 1992 | 20 | | | | | **20** |
| 1993 | 4 | 1 | | | | **5** |
| 1994 | 14 | 2 | | | | **16** |
| 1995 | 10 | 3 | 1 | | | **14** |
| 1996 | 6 | 2 | | | | **8** |
| 1997 | 19 | 6 | | 1 | | **26** |
| 1998 | 46 | 4 | 4 | | | **54** |
| 1999 | 37 | 7 | 9 | 3 | | **56** |
| 2000 | 44 | 7 | 10 | 1 | | **62** |
| 2001 | 47 | 4 | 9 | 1 | | **61** |
| 2002 | 55 | 3 | 11 | | | **69** |
| 2003 | 43 | 3 | 9 | 2 | | **57** |
| 2004 | 55 | 3 | 15 | | | **73** |
| 2005 | 28 | 5 | 13 | 2 | | **48** |
| 2006 | 48 | 8** | 8 | 2 | | **66** |
| 2007 | 30 | 11 | 10 | 1 | | **52** |
| 2008 | 52 | 6 | 22 | 4 | | **84** |
| 2009 | 43 | 18 | 18 | 2 | 2 | **83** |
| 2010 | 61 | 19 | 23 | 3 | 1 | **107** |
| 2011 | 46 | 14 | 20 | 7 | 1 | **88** |
| 2012 | 62 | 29*** | 27 | 2 | | **120** |
| 2013 | 60 | 30 | 21 | 8 | 4 | **123** |
| 2014 | 55 | 33 | 31 | 3 | | **122** |
| 2015 | 64 | 24 | 24 | 7 | 5 | **124** |
| 2016 | 44 | 31 | 27 | 10 | 5 | **117** |
| 2017 | 46 | 24 | 23 | 8 | | **101** |
| 2018 | 54 | 23 | 27 | 7 | 3 | **114** |
| 2019 | 38 | 22 | 24 | 11 | 1 | **96** |
| 2020 | 46 | 24 | 25 | 16 | 2 | **113** |
| 2021 | 51 | 17 | 21 | 15 | | **104** |
| 2022 | 51 | 29 | 18 | 10 | 1 | **109** |
| 2023 | 53**** | 21 | 26**** | 11 | 0 | **109** |
| **Total** | **1416** | **434** | **476** | **137** | **26** | **2489** |

* All lung transplants for Slovenian patients were performed in AKH Vienna with the exception of 2003 (1 transplant performed in Ljubljana UMC) and 2018 (2 transplants performed in Ljubljana UMC). In 2019, 10 transplantations of both lung lobes were performed in the Ljubljana UMC and 1 paediatric lung transplantation in the University Hospital in Vienna (AKH). Since 2020, all lung transplants have been performed in UMC Ljubljana.
** 1 heart from a Slovenian donor was transplanted to a Slovenian patient in Graz
*** 1 heart was transplanted, together with lungs, to a Slovenian patient in Vienna
**** In 2023, two kidneys were transplanted to Slovenian children in Graz and three livers in Bergamo, Italy

***Number of transplanted solid organs from deceased donors in Slovenia or to Slovenian patients in the 1970–2023 period***



***Number of transplanted solid organs from deceased donors in Slovenia or to Slovenian patients in the 1970–2023 period***



## *Living kidneys transplantations*

A living kidney donation in Slovenia is only possible for genetically or emotionally related recipients. Each case of living donation is always reviewed and approved by the Transplant Ethics Committee. The risk to the donor's health must not be disproportionate to the expected benefit to the recipient. At the start of the transplantation programme in Slovenia in 1970, living kidney donation was predominant. From 1986 on, with the establishment of the national donor programme, most organs were retrieved from deceased donors. After a few years break, the living kidney donation programme was revived in 2016 with 1–2 living kidney transplants performed yearly in UMC Ljubljana. Only one such transplantation was performed in 2023.

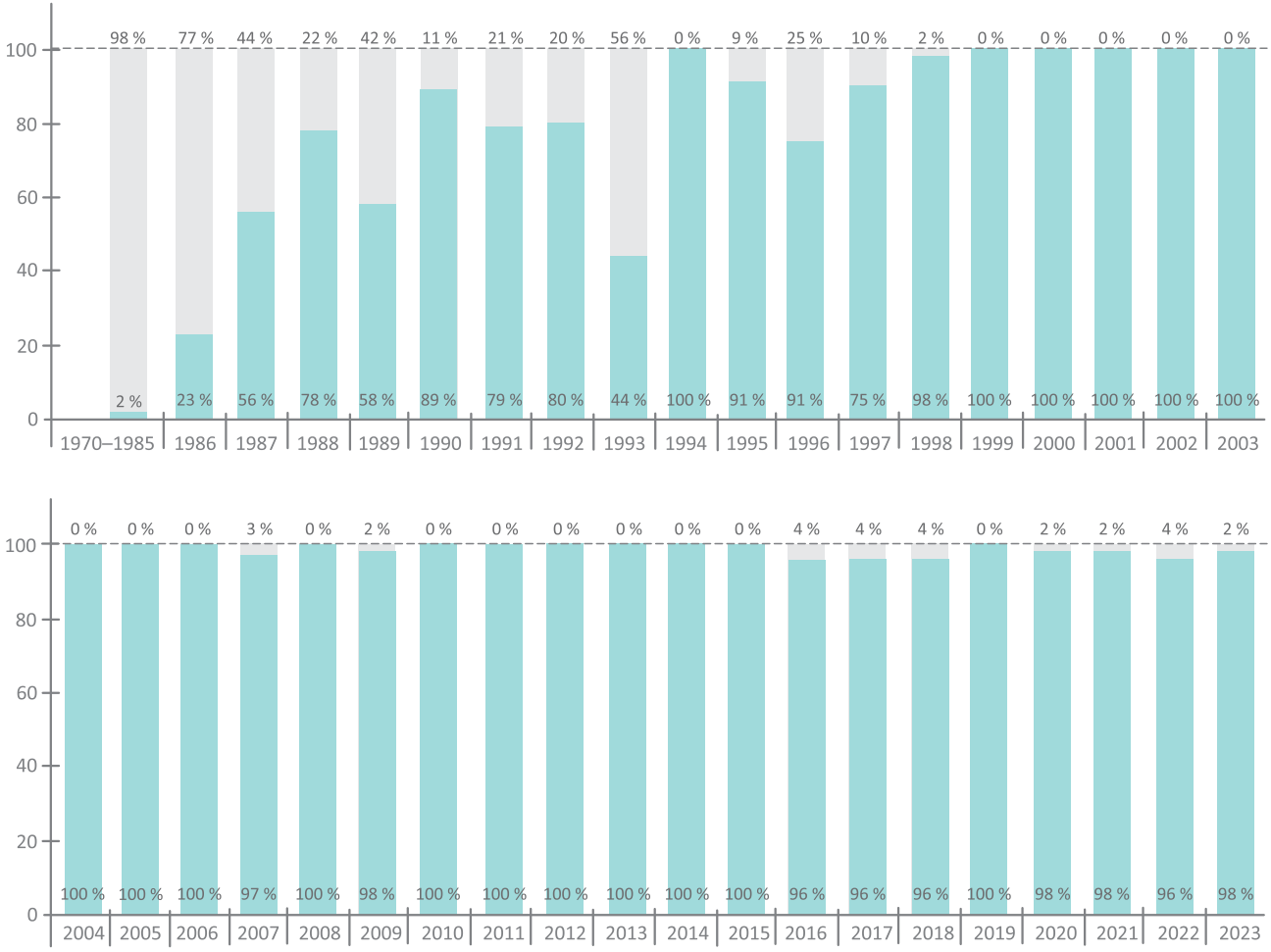
***Number of kidneys transplanted from living donors (LD) in Slovenija in the 1970–2023 period***

| Year | Kidney |
|---|---|
| 1970–1985 | 43 |
| 1986 | 23 |
| 1987 | 14 |
| 1988 | 13 |
| 1989 | 10 |
| 1990 | 2 |
| 1991 | 3 |
| 1992 | 5 |
| 1993 | 5 |
| 1994 | 0 |
| 1995 | 1 |
| 1996 | 2 |
| 1997 | 2 |
| 1998 | 1 |
| 1999 | 0 |
| 2000 | 0 |
| 2001 | 0 |
| 2002 | 0 |
| 2003 | 0 |
| 2004 | 0 |
| 2005 | 0 |
| 2006 | 0 |
| 2007 | 1 |
| 2008 | 0 |
| 2009 | 1 |

| Year | Kidney |
|---|---|
| 2010 | 0 |
| 2011 | 0 |
| 2012 | 0 |
| 2013 | 0 |
| 2014 | 0 |
| 2015 | 0 |
| 2016 | 2 |
| 2017 | 2 |
| 2018 | 2 |
| 2019 | 0 |
| 2020 | 1 |
| 2021 | 1 |
| 2022 | 2 |
| 2023 | 1 |
| **Total** | **137** |

*Source: Archive of Slovenija-transplant and Kandus, A, Bren, F. B. (2016). Kidney transplantation in Slovenia/Transplantacija ledvic v Sloveniji od 1970 do 2013. V Avsec, D. in Zupanič Slavec, Z. (ur.), Razvoj transplantacijske medicine v Sloveniji: programi, smernice in perspektive (str. 138). Ljubljana: Zavod RS za presaditve organov in tkiv Slovenija-transplant; Celje: Celjska Mohorjeva družba: Društvo Mohorjeva družba.*

## *Shares of transplanted kidneys from living and deceased donors in the 1970–2023 period*




| % living donors | % deceased donors |
|---|---|
| total: 12,2 % | total: 87,8 % |

# FOLLOW-UP RESULTS

### *Heart transplant programme*

From 1990 to the end of 2023, the Ljubljana UMC performed 434 heart transplants, with 21 of those occurring in 2023. Eighteen (93%) patients had an urgent and three (7%) an elective transplant. The Ljubljana UMC is ranked among 10 largest heart transplant centres out of 42 in the Eurotransplant area and may be compared by number of transplants with the biggest centres in Germany, Belgium, Hungary and Austria.

The multi-year average (2009–2023) waiting period for an elective heart transplant was approximately 244 days and for an urgent heart transplant about 52 days.

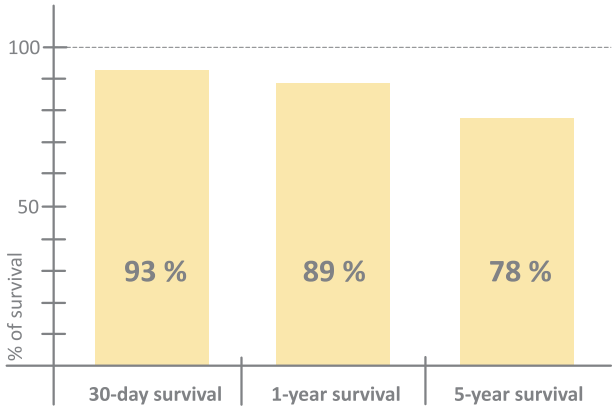
Of all patients with a heart transplant in 2023, 71% needed the procedure due to dilated cardiomyopathy. Other reasons for the transplantation included ischemic heart disease (14%), non-compaction cardiomyopathy (LVNC, 5%) and congenital heart defects (GUCH, 5%).

The patient survival rates are comparable with those from the international reference register kept by the International Society for Heart and Lung Transplantation (ISHLT).

***Survival of adult heart transplant recipients in % (1990–2023, n = 434)***

| 30-day survival | 1-year survival | 5-year survival |
|---|---|---|
| 93 % | 89 % | 78 % |

*Source: Report on implementation of the programme for advanced heart failure and heart transplantation for 2023 (Cardiology Department, Ljubljana University Medical Centre)*



### *Kidney transplant programme*

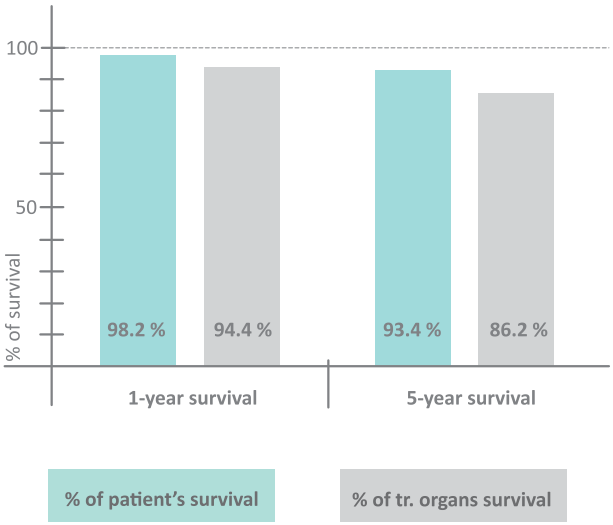
In the period in which Slovenija-transplant has been a member of Eurotransplant (1 January 2000–31 December 2023), 1,186 kidneys of deceased donors (1,137) and living donors (13) have been transplanted. Some recipients had a kidney transplanted in combination with other organs, including 25 with pancreas, 6 with heart and 5 with liver. In 2023 51 kidneys were transplanted, 50 of deceased donors and 1 of the living donor.

In the first post-transplantation year, the clinical, biopsy-proven acute rejection of the transplanted kidney was reported in 12.4% of all patients (1 January 2000–31 December 2023), and in 5.9% of all patients in 2023.
In the 2010–2023 period, the median waiting time until transplantation was 274 days. In 2023, the median waiting time until transplantation was 99 days (in 2022 it was 214 days).

***Survival of kidney transplant recipients and transplanted organs in % (2000–2023, n = 1186)***

| 1-year survival | 5-year survival |
|---|---|
| **Patients** | |
| 98.2 % | 93.4 % |
| **Transplanted organs** | |
| 94.4 %<br>95.2 %* | 86.2 %<br>90.3 %* |

*Source: Report on implementation of the Kidney transplantation programme for 2023 (Department of Nephrology, Ljubljana University Medical Centre)*




*Censored for patient death with a functioning kidney graft

### *Liver transplant programme*

Between 1995 and 31 December 2023, the University Medical Centre Ljubljana performed 473 liver transplants in 428 patients: 393 (92%) patients had elective liver transplantation due to cirrhosis of the liver, chronic liver diseases and liver tumours; 35 (8%) had urgent liver transplantation due to acute liver failure. 42 patients (10%) required re-transplantation of the liver.

In 2023, 23 liver transplants were performed in 22 patients (13 men and 9 women) at the UMC Ljubljana. One patient required a re-transplantation due to thrombosis of the hepatic artery. 19 patients had elective liver transplantation and 3 had urgent liver transplantation. A combined liver and kidney transplant was performed in one male and one female patient. In addition, a liver transplant was performed on three Slovenian paediatric patients in Bergamo, Italy.

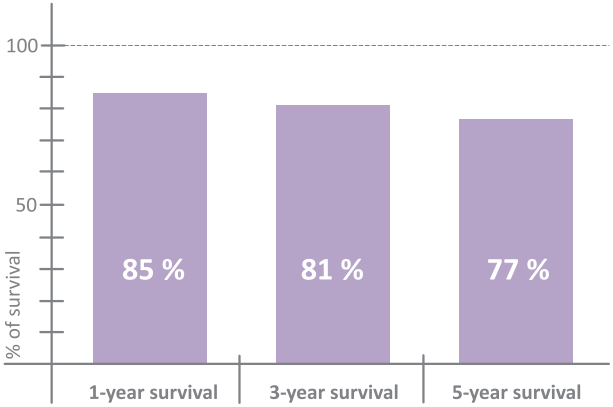
Four patients (18%, 2 men and 2 women) needed the procedure due to primary sclerosing cholangitis, 3 male and 1 female patient (18%) due to cryptogenic cirrhosis and 3 male patients (13.5%) due to etilic cirrhosis of the liver. Three patients (13.5%) had urgent liver transplantation due to acute liver failure, one woman each due to fulminant autoimmune hepatitis and drug-induced liver failure and one man due to fulminant viral hepatitis B with concomitant acute HIV infection. One male and one female patient (9%) underwent simultaneous liver and kidney transplantation, one due to polycystic kidney disease and Caroli liver disease and the other due to autosomal dominant polycystic liver and kidney disease. Two men (9%) were transplanted due to hepatocellular carcinoma (HCC), one woman (4.5%) each due to primary biliary cholangitis (PBC), autoimmune hepatitis (AIH) and haemochromatosis and one man (4.5%) due to hepatic epithelioid haemangioendothelioma.

The average waiting time for a liver transplantation in 2023 was 164 days, with a median of 73 days. In cases of high urgency, a suitable organ was usually available within a few days.

### *Survival of liver transplant recipients and transplanted organs in % (1988–2023)*

| 1-year survival | 3-year survival | 5-year survival |
|---|---|---|
| 85 % | 81 % | 77 % |

*Source: Report on implementation of the programme for liver transplantation for 2023 (Clinical Department of Gastroenterology, University Medical Centre Ljubljana)*




### *Pancreas transplant programme (in combination with kidney)*

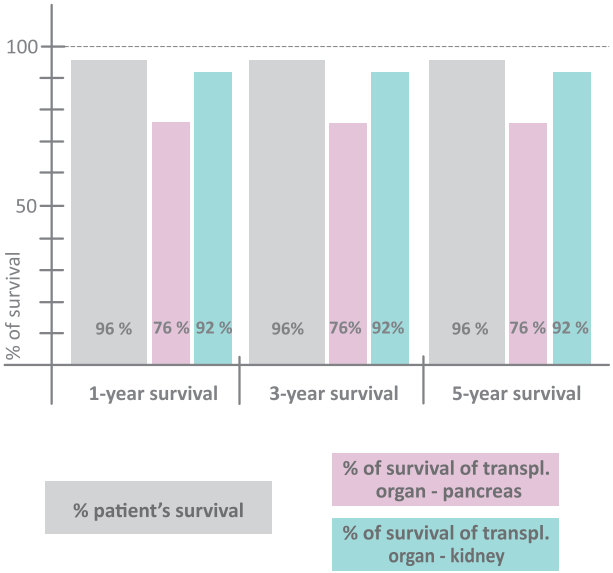
In the period from 20 February 2009 to 31 December 2023, 25 pancreas transplants were performed, all concurrently with a kidney in 24 patients with type I diabetes and 1 patient with type II diabetes. No combined pancreas and kidney transplants were performed in 2023.

At the end of 2023, there were 16 patients in Slovenia with a functioning pancreas and kidney.

***Survival of combined pancreas-kidney transplant recipients and transplanted organs in % (2009–2023, n = 25 (patients) and n = 20 (transplanted organs)***

| 1-year survival | | 3-year survival | | 5-year survival | |
|---|---|---|---|---|---|
| Patients | | | | | |
| 96 % | | 96 % | | 96 % | |
| Transplanted organs | | | | | |
| Pancreas | Kidney | Pancreas | Kidney | Pancreas | Kidney |
| 76 % | 92 % | 76 % | 92 % | 76 % | 92 % |

*Source: Report on implementation of the programme for pancreas transplantation for 2023 (Department of Nephrology, Ljubljana University Medical Centre)*




***Lung transplant programme***

In the period from 1997 to 2023, 137 lung transplants were performed in Slovenian patients: 72 transplants were performed at AKH Vienna (until 2019), including 1 re-transplantation and 1 combined lung-heart transplantation. In 2023, 11 lung transplants were performed at UMC Ljubljana, all of them were of both lung lobes.

The most common indications for lung transplantation at the UMC Ljubljana in 2023 were pulmonary fibrosis (36%) and chronic obstructive pulmonary disease (27%). Other indications were alpha-1-antitrypsin deficiency, bronchiectasis, bronchiolitis due to GVHD (transplant-related disease) and sarcoidosis.

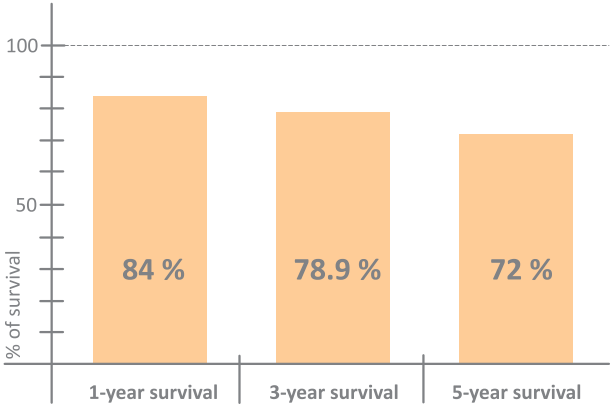
The median waiting time for elective lung transplantation in the period 2018–2023 was 98 days, for urgent transplantations 9 days.

## *Survival of lung transplant recipients in % (1997–2023)**

| 1-year survival | 3-year survival | 5-year survival |
|---|---|---|
| 84 % | 78.9 % | 72 % |

*Source: Report on implementation of the programme for lung transplantation for 2023 ((Department of Pulmonology and Allergology, University Medical Centre Ljubljana)*

* In the period 2018–2023, the 1-year survival rate was 85.1% and the 3-year survival rate was 78.2% for patients who underwent a lung transplant at the Ljubljana UMC.





*Attendees and lecturers of the 10th intensive Transplant coordination management course, 27-29 March 2023.*

# TISSUES AND CELLS

# TRANSPLANTATION OF HAEMATOPOIETIC STEM CELLS

Haematopoietic stem cell (HSC) transplantation is a possible treatment method for more than 70 malignant and non-malignant diseases, and in certain haematological diseases transplantation is the most important therapeutic and also the only option for cure. The modern method of treatment with KMC achieves a success rate of more than 90% under optimal conditions (http://www.ztm.si). For such success, sufficient antigenic (HLA) compatibility between donor and recipient must be ensured. For this reason, Slovenia has been included in the global register of the World Marrow Donor Association (WMDA), in which voluntary donors who are HLA typed are registered. In the event of a match, procedures for collection and transplantation are carried out.

In some cases it is possible to use the patient's own stem cells for treatment, which is known as autologous donation. More often it is a donation based on sufficient tissue compatibility between relatives. Under Slovenian legislation, collection and transplantation can also take place between unrelated persons, whereby the principle of anonymity must be observed. Donation from another donor is an allogeneic donation, where we first search for a donor in Slovenia and after abroad.

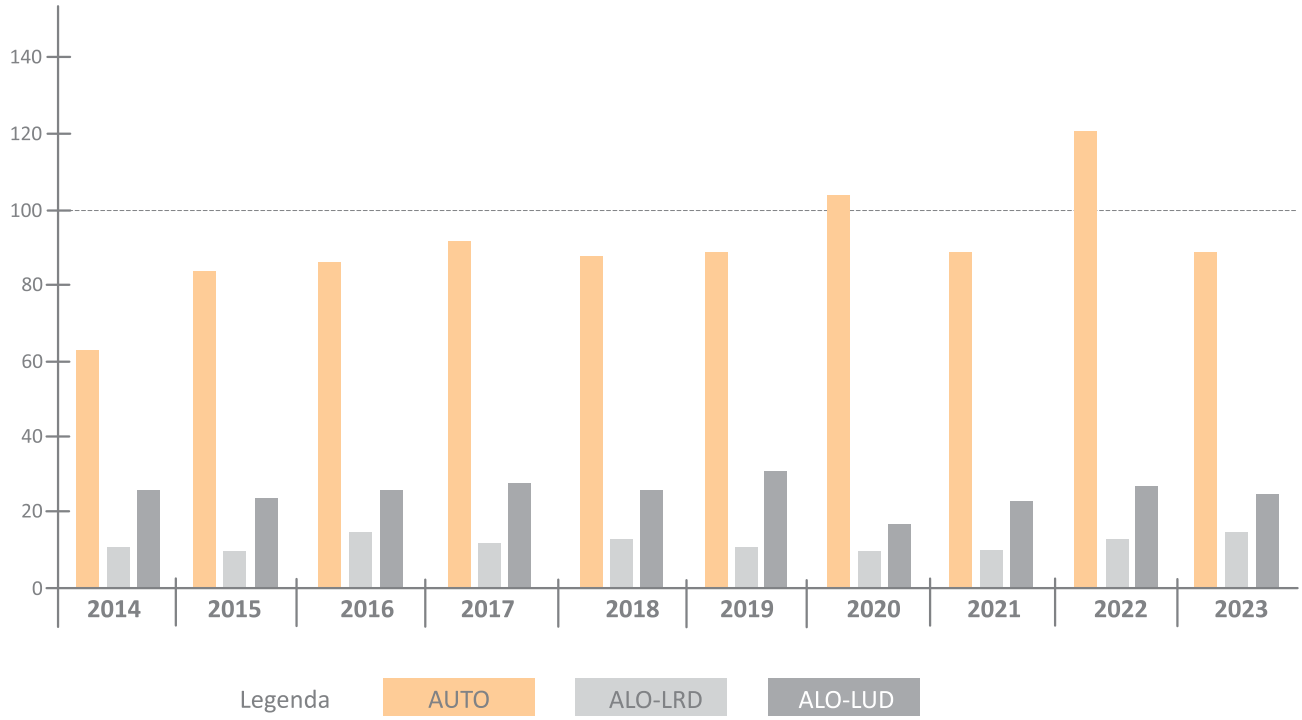
### *HSC transplantations in Slovenia in the 2000–2023 period*

| Transplantation type | 2000–2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AUTO | 774 | 63 | 84 | 86 | 92 | 88 | 89 | 104 | 89 | 121 | 89 |
| ALO-LRD | 126 | 11 | 10 | 15 | 12 | 13 | 11 | 10 | 10 | 13 | 15 |
| ALO-LUD | 155 | 26 | 24 | 26 | 28 | 26 | 31 | 17 | 23 | 27 | 25 |
| AUTO in ALO-LRD | 21 | | | | | | | | | | |
| **Total** | **1,076** | **100** | **118** | **127** | **132** | **127** | **131** | **131** | **122** | **161** | **129** |

*Source: Yearly report of ZTM – Slovenija donor, data collected monthly for Slovenija-transplant archives*

*Legend:*
*AUTO – autologous transplantations,*
*ALO – allogeneic transplantations,*
*LRD – living related donor,*
*LUD – living unrelated donor*

### *HSC transplantations in Slovenia in the 2014–2023 period*




### *The Slovenija Donor register*

In Slovenia a register of non-related donors, Slovenia Donor, was established in 1991 and in the following year it became a full member of the world register World Marrow Donor Association (WMDA).

On 31 December 2023, the Slovenia Donor register included 25,036 people, of whom 21,829 were entered on the BMDW register. In addition, 537 units of umbilical cord blood are registered in the Slovenia Donor register, 341 of them in the WMDA.

# CORNEA PROCUREMENT AND TRANSPLANTATION PROGRAMME

Cornea transplantation is one of the most frequent and most successful tissue transplantations in Slovenia and in the world. This medical treatment is often the only method that can improve sight after a disease or injury. The removal of corneas is possible following consent given by the deceased person during lifetime or if their close relatives do not object. In addition to the consent obtained, a detailed assessment of the suitability of the cornea for transplantation by the physician responsible for the recipient is required. Corneas are transplanted in two transplantation centres: the Department of Ophthalmology in the Ljubljana UMC and the Department of Ophthalmology in the Maribor UMC.

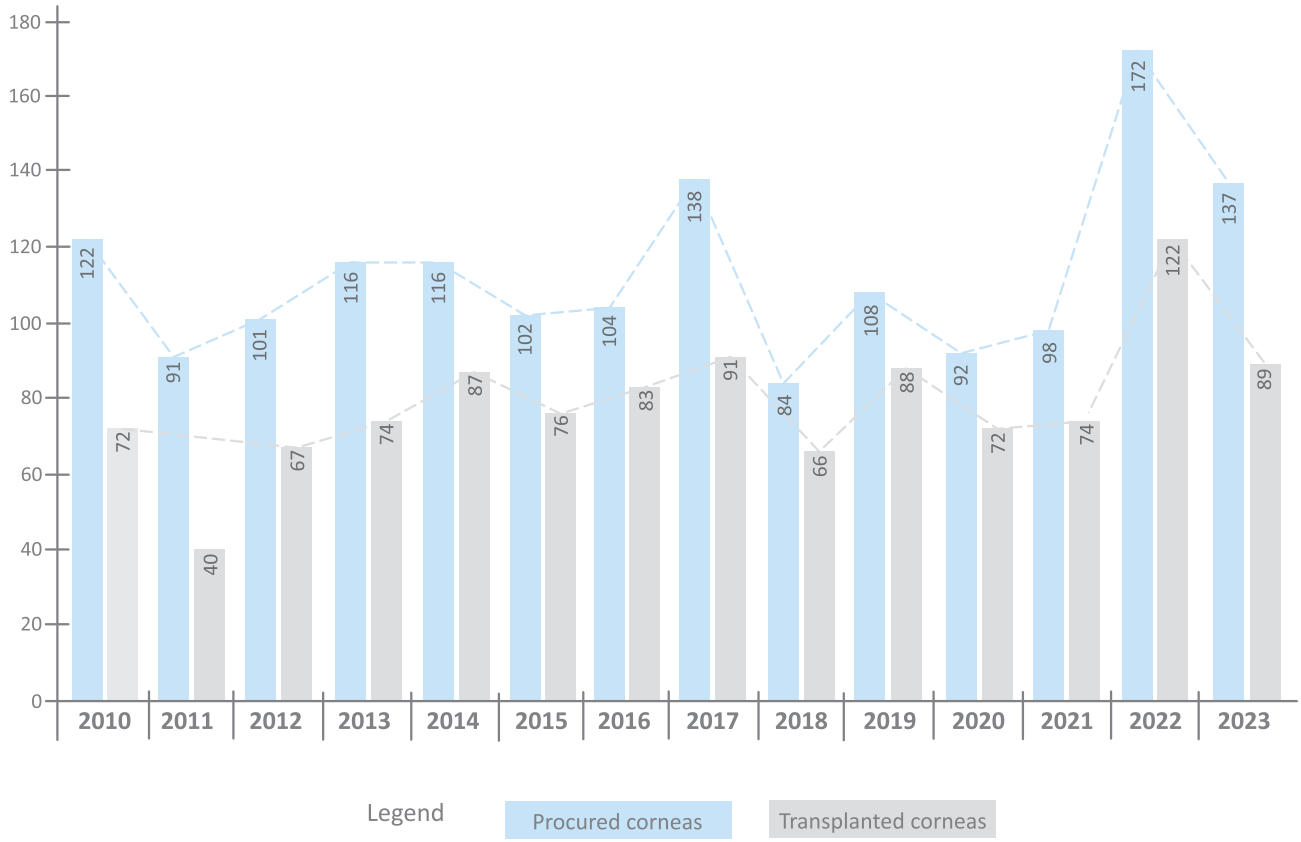
***Procured and transplanted corneas in the 2010–2023 period***

| Year | No. of procured corneas | *No. of transplanted corneas |
|---|---|---|
| 2010 | 122 | 72 |
| 2011 | 91 | 40 |
| 2012 | 101 | 67 |
| 2013 | 116 | 74 |
| 2014 | 116 | 87 |
| 2015 | 102 | 76 |
| 2016 | 104 | 83 |
| 2017 | 138 | 91 |
| 2018 | 84 | 66 |
| 2019 | 108 | 88 |
| 2020 | 92 | 72 |
| 2021 | 98 | 74 |
| 2022 | 172 | 122 |
| 2023 | 137 | 89 |

*Source: Archive of Slovenija-transplant*

* 2010–2017 – Cornea transplants performed in Ljubljana UMC only; from 2018 on, cornea transplants performed in Ljubljana UMC and Maribor UMC

### *Procured and transplanted corneas in the 2010–2023 period*




### *Deceased cornea donors*

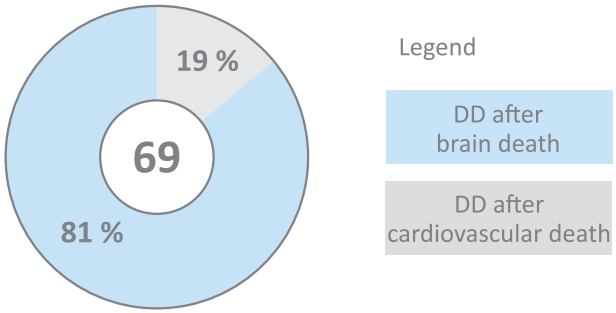
In Slovenia, corneas are procured from deceased donors after a cardiovascular death or a brain death. Donors after brain death are in most cases donors who donate both organs and tissues. In the case of deceased donors after cardiovascular death, only tissues, in most cases corneas, are procured.

## *Number and proportion of deceased donors (DD) by diagnosis of death in 2023*

| DD after brain death | | DD after cardiovascular death | |
|---|---|---|---|
| No. | % | No. | % |
| 56 | 81 % | 13 | 19 % |

*Source: Archive of Slovenija-transplant*

## *Number and proportion of deceased donors (DD) by diagnosis of death in 2023*




## *Number of patients on the waiting list for corneal transplantation in 2023*

| Ljubljana UMC | Maribor UMC | Total |
|---|---|---|
| 307 | 9 | 316 |

*Source: the Department of Ophthalmology in the Ljubljana UMC (on 16 February 2024) and Maribor UMC (on 24 January 2024 )*

### *Patients on the waiting list for corneal transplantation with a diagnosis of keratoconus*

The diagnosis of keratoconus is one of the most common urgent indications for corneal transplantation. The data above on the number of corneas procured and the data below on the number and proportion of patients on the waiting list with this diagnosis show that the Slovenian cornea procurement programme meets the treatment needs of these patients every year.

| Year | Diagnosis of keratoconus | | Other diagnoses* | |
|---|---|---|---|---|
| | No. of patients | Proportion in % | No. of patients | Proportion in % |
| 2014 | 35 | 39 % | 55 | 61 % |
| 2015 | 21 | 19 % | 89 | 81 % |
| 2016 | 33 | 22 % | 120 | 78 % |
| 2017 | 49 | 25 % | 145 | 75 % |
| 2018 | 46 | 18 % | 210 | 82 % |
| 2019 | 56 | 21 % | 212 | 79 % |
| 2020 | 40 | 17 % | 199 | 83 % |
| 2021 | 41 | 15 % | 239 | 85 % |
| 2022 | 41 | 15 % | 240 | 85 % |
| 2023 | 51 | 17 % | 265 | 83 % |

*Source: Archive of Slovenija-transplant and the Department of Ophthalmology in the Ljubljana UMC (on 16 February 2024) and Maribor UMC (on 24 January 2024 ).*

* Other diagnoses: injuries, degeneration, re-transplantation, corneal macula, Fuchs dystrophy, endothelial dystrophy, cornea guttata, aphakia and pseudophakia, bullous keratopathy, infections, other.

# OTHER TISSUES AND CELLS

### *Traceability and transparency in transplant programmes or tissue and cell use programmes for treatment purposes*

Tissue and cell institutions must hold a valid permit issued by the Agency for Medicinal Products and Medical Devices of the Republic of Slovenia (hereinafter: JAZMP). Slovenija-transplant ensures traceability and transparency by promptly collecting and reviewing reports written by the institutions for tissues and cells which present the donation, procurement, processing, storing, allocation, use and disposal of tissues and cells.

At the end of the year, Slovenija-transplant compiles an aggregate annual report based on annual reports issued by individual tissue and cell institutions. We are also authorised to compile an annual final report on serious adverse events and reactions and submit it to the JAZMP, which then reports about this to the European Commission.

### *Number of tissues and cells procured in the 2014–2023 period*

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| SKIN* | 89 | 52 | 57 | 32 | 22 | 24 | 10 | 46 | 63 | 112 |
| BONES* | 82 | 147 | 74 | 80 | 78 | 71 | 59 | 256 | 87 | 89 |
| SOFT BONE GRAFTS* | 3 | 9 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| CARTILAGE* | 11 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REPRODUCTIVE CELLS (No. of cells) | 37,542 | 39,769 | 26,191 | 36,338 | 13,778 | 26,813 | 28,209 | 24,736 | 25,721 | 33,635 |

*Source: Archive of Slovenija-transplant*

* Unit: number of samples taken

### *Number of tissues and cells used in the 2014–2023 period*

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| SKIN* | 23 | 31 | 28 | 0 | 20 | 3 | 0 | 47 | 43 | 12 |
| BONES* | 62 | 92 | 82 | 72 | 71 | 81 | 101 | 123 | 90 | 128 |
| SOFT BONE GRAFTS* | 4 | 3 | 5 | 2 | 3 | 5 | 4 | 2 | 6 | 12 |
| CARTILAGE* | 9 | 5 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 0 |
| REPRODUCTIVE CELLS (No. of cells) | 27,271 | 31,127 | 26,620 | 31,817 | 12,110 | 5,109 | 14,255 | 27,547 | 28,194 | 28,716 |

*Source: Archive of Slovenija-transplant*

* Unit: number of samples used

### *Tissue and cell institutions along with quality and safety assurance*

In Slovenia, 27 institutions are involved in the activity of procuring and using tissues and cells on the national level. Fifteen hospitals are included in the programme and, within these, 40 clinical departments. In terms of their status, 18 tissue and cell institutions are public and 9 privately-owned. Private institutions hold a permit exclusively for the autologous procurement of tissues and cells.

Slovenija-transplant and the JAZMP ensure that the system functions transparently and promptly identify and discuss any deviations that could affect the quality and safety of the tissues and cells of donors, recipients as well as the staff involved in the processes.

To obtain a permit, every institution must comply with strict expert and legal terms and provisions. All institutions have set up a quality assurance system where all the procedures for ensuring the conditions for tissue and cell quality and recipient safety are defined. They are regularly supervised by the JAZMP, whereas Slovenija-transplant also performs verification of the data reported.

### *Artificial insemination with biomedical assistance and reproductive cells*

Four centres are registered in Slovenia for the activity of artificial insemination with biomedical assistance for couples; namely, the Ljubljana AIBA Centre, the Maribor AIBA Centre, the Postojna AIBA Centre, and the Dravlje Health Centre.
The scope of their activities is evident from the table showing the procured and used tissues and cells. This is the most comprehensive area in terms of the number of procedures conducted.

### *Procuring and storing umbilical cord blood and the umbilical cord*

In Slovenia, we also procure haematopoietic stem cells from umbilical cord blood and umbilical cord as well as from other tissues (e.g. milk teeth). One public tissue bank, the Blood Transfusion Centre of Slovenia (hereinafter: BTCS), and three privately-owned institutions (Izvorna celica, Biobanka and FH-S) have a licence for this activity. Public banks only allow allogeneic transplants, while private banks allow autologous transplants. The public umbilical cord blood bank within the BTCS stopped accepting samples of umbilical cord blood on 1 January 2015 as a sufficient number of samples had been collected and stored to meet Slovenia's needs.

*Source: http://www.ztm.si/register-darovalcev/javna-banka-popkovnicne-krvi/*

### *Number of procured umbilical cord blood units in the period 2015–2023*

| Institution | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|
| IZVORNA CELICA | 76 | 144 | 107 | 82 | 81 | 81 | 78 | 73 | 69 |
| BIOBANKA | 175 | 178 | 266 | 110 | 224 | 197 | 241 | 170 | 160 |
| FH-S | 8 | 45 | 101 | 169 | 192 | 206 | 245 | 293 | 313 |
| NEOCELICA | 238 | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |

*Source: Archive of Slovenija-transplant*

*this institution stopped operating

***Number of procured umbilical cord units in the period 2015–2023***

| Institution | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|
| IZVORNA CELICA | 60 | 116 | 96 | 52 | 73 | 75 | 77 | 71 | 66 |
| BIOBANKA | 32 | 150 | 222 | 96 | 212 | 184 | 236 | 170 | 164 |
| FH-S | 8 | 42 | 96 | 114 | 196 | 213 | 247 | 301 | 315 |
| NEOCELICA | 198 | 0* | 0* | 0* | 0* | 0* | 0* | 0* | 0* |

*Source: Archive of Slovenija-transplant*

*this institution stopped operating

## ADVERSE EVENTS AND REACTIONS

Slovenija-transplant is responsible for monitoring adverse events and reactions as well as deviations in the area of the procurement of tissues and cells for transplantation and/or tissue vigilance. The aim of collecting reports on adverse events and reactions or even raising doubts about them is to assure the quality of procedures and thus prevent the damage or even loss of tissues and cells.

Reporting takes place using prescribed forms, whereby initial and final reports must be submitted for each case. Both forms are attached to the Rules on Tissue Vigilance. Reporting entails several phases: identification of deviation, detailed assessment and description of the case, adoption of appropriate measures for preventing damage to tissues and cells as well as people, reporting the case to relevant institutions, and notification of all tissue and cell institutions which were provided with tissues and cells in which deviations were identified.

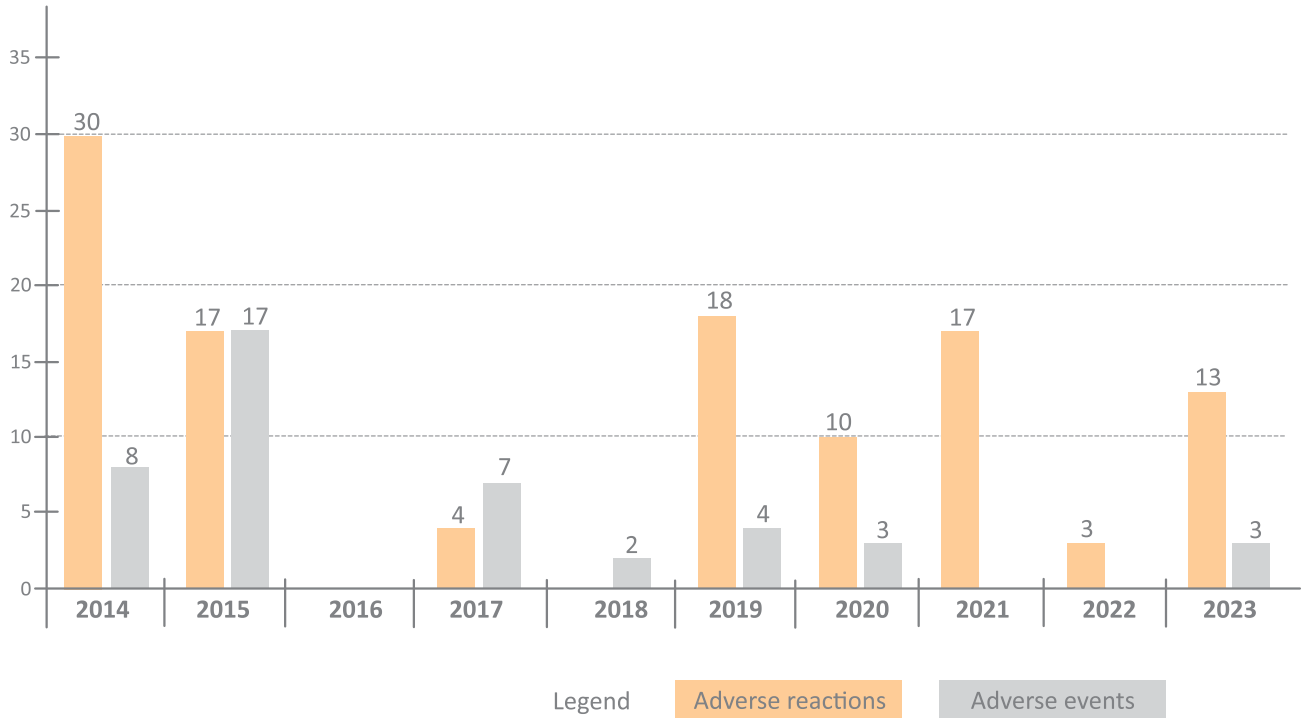
All data collected in the tissue vigilance system are anonymised so as to ensure privacy and, on the other hand, comply with the so-called culture of non-judgement, which means encouraging reporting along with searching for solutions and improvements, while not judging implementers on a personal level.

## *Number of adverse events and reactions in the 2014–2023 period*

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| Adverse reactions | 30 | 17 | 0 | 4 | 0 | 18 | 10 | 17 | 3 | 13 |
| Adverse events | 8 | 17 | 0 | 7 | 2 | 4 | 3 | 0 | 0 | 3 |

*Source: Archive of Slovenija-transplant*

## *Number of adverse events and reactions in the 2014–2023 period*



# EDUCATING AND INFORMING THE PROFESSIONAL PUBLIC

The training and informing of healthcare professionals is crucial for the successful development and functioning of the donation and transplantation system. In 2023, all training programmes were updated in line with new developments and modern professional guidelines. Topics such as donation after circulatory death (DCD), options for the active detection of potential deceased donors, new guidelines for the treatment and care of critically ill patients in intensive care units, options for organ and tissue donation after death (ICOD programme) and the responsibility to prevent organ trafficking were highlighted. The professional public is regularly informed about new developments via the e-newsletter.

### *"Basics of the Donor Programme" training*

Basic training is provided in all hospitals involved in donor activities. Participants are given an overview of the donor programme, its activities and results. In 2023, we delivered the training in two selected donor hospitals: Brežice GH (25 participants) and Ptuj GH (15 participants). A total of 40 participants, doctors and nurses, attended the training sessions and rated all the lectures highly.

### *Advanced education and training for health professionals*

The Intermediate Training Course in Transplant Coordination according to the TPM programme is delivered in collaboration with the Spanish organisation DTI. The aim of the course is to develop the donor programme and provide in-depth training for doctors and other staff in intensive care units and emergency units from all donor hospitals. In 2023, we held the 10th anniversary repetition of the course live again, at the traditional location in the Logarska Valley. It was attended by 33 participants from all Slovenian donor hospitals and young transplant coordinators from Slovenia-transplant. Lectures and workshops were given by lecturers from Slovenija-transplant and UMC Ljubljana, while Spanish experts presented global trends and innovations, with a focus on donation after circulatory death (DCD), new guidelines in the treatment and care of critically ill patients in intensive care units, and options for organ and tissue donation after death (ICOD programme).

### *Workshop "Delivering the bad news and conversation with the family about the donation"*

The workshop's main objectives are to teach communication skills and ways to communicate bad

news, to respond appropriately to bereaved relatives, to have a conversation about organ donation and to understand the value of the decision to donate organs for bereaved relatives. The workshop is intended for transplant coordinators, doctors and nurses working in intensive care units. In 2023, one basic workshop was held for five new colleagues in the team of central transplant coordinators.

***Histovigilance workshop***

This workshop is aimed at responsible persons at tissue and cell institutions, hospital and central transplant coordinators and all other professionals involved in the procurement, transplantation and processing of tissues and cells for transplantation therapy. The EU histovigilance system, the national reporting system, use of the histovigilance case evaluation tool and histovigilance cases from practice are presented at the workshop. This is followed by practical group work and discussion.

As we held two workshops in 2022, we are planning the next iteration in 2024.

***Slovenija-transplant e-newsletter***

The professional news from Slovenija-transplant is targeted at the professional public, informing them about novelties, activities of the institute, media publications, statistics and training options. The aim of this communication tool is to reach a well-informed, connected and development-oriented professional public. In 2022, we published four issues of the newsletter and sent it to more than 500 email addresses. The opening rate was over 50%.

# INTERNATIONAL PROJECTS

***BRAVEST – Building Resilience Against crisis: a systematic and global approach to adVancE organ Safety and supply in Transplantation***

Duration: 1 September 2022 – 28 February 2025
Co-financing: EU4HEALTH Programme

Slovenija-transplant is an important partner in an EU project led by the European Society for Organ Transplantation (ESOT). Members of a top international interdisciplinary team are analysing the factors that influenced the success of donation and transplantation activities before, during and after the SARS-CoV-2 outbreak. The ultimate goal of the project is to improve the resilience of donation and transplantation systems in times of crisis (e.g. epidemics, environmental disasters, earthquakes, war...).
The members of the consortium meet regularly for monthly (online) meetings. In 2023, a qualitative analysis of the countries' organisational and systemic response to the epidemic was carried out. Great efforts were made to solve the complex problem of international exchange and comparability of data on organ donors and recipients, which must be in line with the national requirements of the General Data Protection Regulation and the common research objectives.
Slovenija-transplant leads the Work Stream 5 (Sustainability of results) and is involved in all work streams and activities of the project as the national competent authority. The leader of the project at national level is Chief Phys. Danica Avsec. More information about the project can be found here: https://www.bravest-project.eu/ .

***YOU HAVE MORE THAN ONE LIFE – ADULT EDUCATION FOR PROMOTION OF TRANSPLANTATION***

Duration: 1 November 2022 – 31 July 2023
Financing: ERASMUS+ EU Programme

The project “You have more than one life” was implemented in an excellent cooperation with the Polish partner Fundacja Pasjonaci Życia Projekt. The project, which addressed the field of public awareness and education, was a contribution and a step forward for Slovenia-transplant's modern approach to communication.
During content-intensive project, we exchanged good practices, attended public events in Poland

(Run for life) and workshops in Slovenia. The project enabled us to organise a 3-day national communication symposium and workshop on rhetoric in Rakitna for 15 organ recipients, so called transplant ambassadors. 15 organ recipients were trained about strategic communication approach of Slovenija-transplant, professional aspects of organ donation, social attitudes to organ donation in Slovenia, about speaking in the public and in the media. Project activities have deepened the long-standing good co-operation between Slovenija-transplant and the Slovenian patient association Transplant was expanded.

As a result, we recorded 15 short videos with first-hand experiences. The videos offer answers to questions about the experience of being diagnosed, the moment you get the call about the matching organ, dealing with fears, coping strategies, support mechanisms, experiences with medical care and staff. The messages are encouraging and mobilise the public for organ donation.









Co-funded by the Erasmus+ Programme of the European Union

# II. PUBLIC RESEARCH COMPETITION OF SLOVENIJA-TRANSPLANT

Slovenia-transplant has successfully organised the II prize-winning research competition in the field of donation and transplantation medicine. The aim of the competition is to promote high-quality development and research, to introduce research innovations and open platform for an interdisciplinary co-operation.

At the symposium, which took place on 13 October 2023 in Cukrarna, the winners of the competition presented their work and key research results (Jan Krajnik and Tadej Rozman live, while Argresa Bylykbashi connected remotely from Switzerland). The results of the competition are:

1st prize (800 €)
**Tadej Rozman: Ethical aspects of donation after circulatory death** (147 points)

2nd prize (500 €)
**Jan Krajnik: Organ donation after the death of the donor: a system of presumed consent** (144 points)

3rd prize (200 €)
**Argresa Bylykbashi: Health care workers' opinions on organ donation at University medical centre Ljubljana** (138 points)

All three papers and presentations were of high quality and the themes were topical. The authors provided insights into international contexts. The importance of thorough reflection, knowledge of multi-layered responses and interdisciplinary integration and co-operation in the development of national protocols and activities was demonstrated.

Members of the evaluation committee:
Andrej Gadžijev, *MD*, Chief Phys. Danica Avsec, *MD*, Jana Šimenc, *PhD in Ethnology and Cultural Anthropology*.

We would like to congratulate the winners and wish them every success for the future.



*European Donation Day 2023: press conference, professional symposium and awarding ceremony for the winners of the II. Slovenia-transplant competition for the best research work, 13 October 2023.*









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***PHOTOGRAPHY SOURCE:*** Slovenija-transplant.



# Slovenija-transplant

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