



Swiss National Foundation for Organ
Donation and Transplantation

Organ donation and transplantation

Bern | 2024

info@swisstransplant.org



**Aline,
heart recipient**



Objectives of the presentation

1. The Swisstransplant Foundation
2. Transplantation Act
3. Facts and figures
4. Organ donation procedure
5. Questions

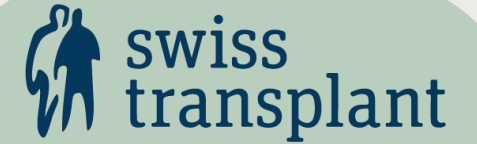


01

Swisstransplant
Structure and organization

Swisstransplant

Swisstransplant – Swiss National Foundation for Organ Donation and Transplantation



1985

Creation of the Foundation in Geneva
• Bern

2007

Mandated by the Federal Office of Public Health (FOPH) as the national allocation service

- Allocation of organs to recipients in accordance with the law
- Management of the waiting list

2009

Allocation of benefits by the Swiss Conference of the Cantonal Ministers of Public Health

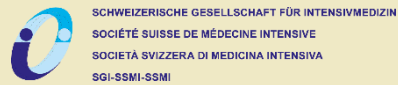
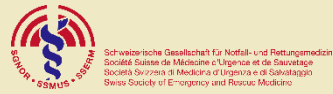
- Coordination and development of organ donation at the national level

Compensation in the organ donation process/financing of hospital staff (H+/SVK)



Organ donation

Organ donation networks

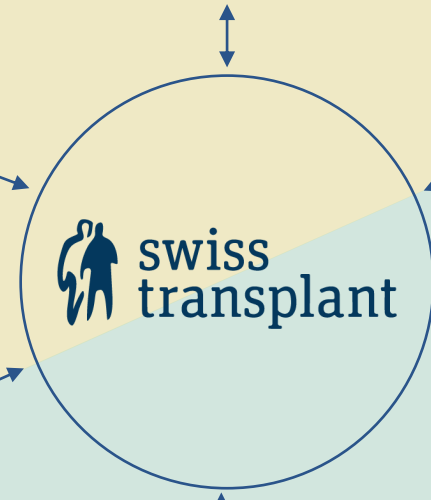


International collaboration

- **FOEDUS** – European Organ Exchange Organisation
- **CD-P-TO** – European Committee on Organ, Tissue and Cell Transplantation



Konferenz der kantonalen Gesundheitsdirektorinnen und -direktoren
Conférence des directrices et directeurs cantonaux de la santé
Conferenza delle direttrici e dei direttori cantonali della sanità



SVK | FSA



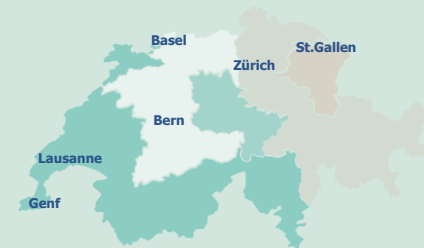
DIE SPITÄLER DER SCHWEIZ
LES HÔPITAUX DE SUISSE
GLI OSPEDALI SVIZZERI



Association Suisse des Transplantés
Schweizerischer Transplantierten Verein
Associazione Svizzera dei Trapiantati

Transplantation

Transplant centres



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Departement des Innern EDI
Bundesamt für Gesundheit BAG



Organization

5 donation networks

Swisstransplant mandated by the CDS for:

- Regional grouping of hospitals
- Training of medical staff
- Implementation of legal directives
- Implementation of standard processes
- **Use of synergies at national level**



PLDO – 16 Spitäler

Programme Latin de Don d'Organes

Netzwerkleiter

PD Dr. med. Raphaël Giraud

Kantone: FR, GE, JU, NE, TI, VD, VS

Entnahmespitäler

- Centre Hospitalier du Valais Romand (CHVR) (Spital Sitten)
- Centre hospitalier universitaire vaudois (CHUV)
- Ente Ospedaliero Cantonale (EOC) (Standort Lugano)
- HFR Freiburg – Kantonsspital
- Hôpitaux universitaires de Genève (HUG)
- Réseau hospitalier neuchâtelois (RHNe) (Standort Pourtalès)



DCA – 23 Spitäler

Donor Care Association

Netzwerkleiter

PD Dr. med. Matthias Hilty

Kantone: GL, GR, SH, SZ, TG, ZG, ZH

Entnahmespitäler

- Kantonsspital Graubünden (KSGR) (inklusive Kinder- und Jugendmedizin)
- Kantonsspital Winterthur (KSW)
- Universitätsspital Zürich (USZ)



CHM – 21 Spitäler

Organspende Netzwerke Schweiz-Mitte

Netzwerkleiterin

Dr. med. Sabine Camenisch

Kantone: AG, BE, BL, BS, SO, VS

Entnahmespitäler

- Kantonsspital Aarau (KSA)
- Universitäts-Kinderspital beider Basel (UKBB)
- Universitätsspital Basel (USB)
- Universitätsspital Bern (Inselspital) (inklusive Kinderkliniken)



NOO – 5 Spitäler

Netzwerk Organspende Ostschweiz

Netzwerkleiterin

Yvonne Hilpertshäuser

Kantone: AI, AR, SG

Entnahmespital

- Kantonsspital St. Gallen (KSSG)



Luzern – 8 Spitäler

Netzwerkleiter

Dr. med. Christian Brunner

Kantone: LU, NW, OW, UR

Entnahmespital

- Luzerner Kantonsspital (LUKS) (inklusive Kinderspital Luzern)

Transplant centres in Switzerland



University Hospital of Bern (Inselspital)



University Hospital of Basel (USB)



University Hospital of Zurich (USZ)



University Hospital of Vaud (CHUV)



University Hospital of Geneva (HUG)



Cantonal Hospital of St. Gallen (KSSG)





02

Swisstransplant
Politics and society

Transplantation Act

Transplantation Act

Federal Act on the Transplantation of Organs, Tissues and Cells (Transplantation Act), 2007

- Replaced cantonal legislation regulating donor and recipient aspects
- Creation of a national allocation service

Essential points of the law

- Principle of free access and prohibition of trade
- Principle of explicit consent in the broader sense*
- Organ allocation according to by-laws

* On 15 May 2022, the people approved the principle of presumed consent in the broad sense. The new regulation will come into force in 2026 at the earliest (bag.admin.ch).

What is the extended opt-out solution?

- If a person objects to organ donation while they are alive, they are no longer an organ donor.
- If the deceased person made no statement regarding organ donation prior to their death, the next of kin are consulted. “Do you know if the deceased stated or would state that they *do not* want to be an organ donor?”
- If there is no objection or any other statement regarding the willingness of the deceased to be a donor, and if no next of kin can be found despite efforts being made, no organs may be removed.

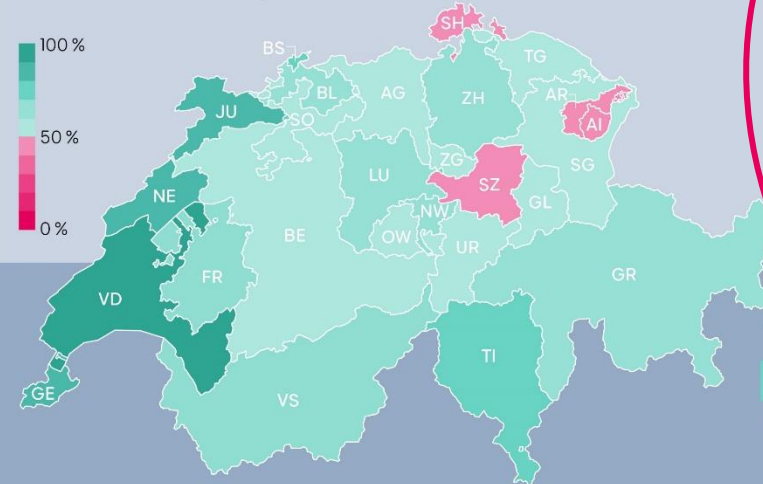
Change of system: Extended opt-out solution

60.2 % yes

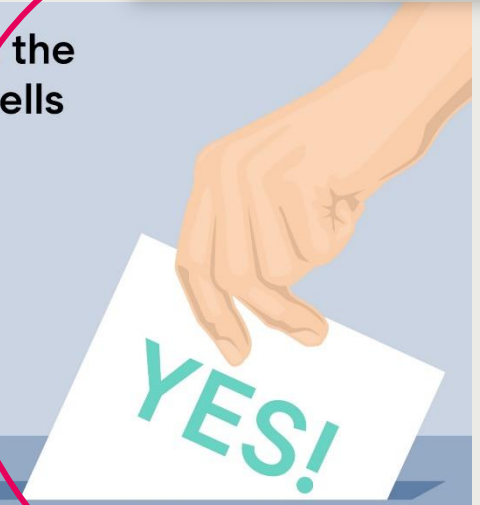


Voters say YES to the new Federal Act on the Transplantation of Organs, Tissues and Cells

Referendum of 15 May 2022



Yes: 60.2 %
No: 39.8 %
Votes: 1 319 262 872 121



The extended opt-out solution applies from 2026 at the earliest.

In principle, every person is considered to be a donor of organs and tissues, unless he or she has stated during his or her lifetime that he or she does not wish to donate. Organ donation will remain voluntary. Relatives will be involved in every case.



Source: VotInfo-App

03/2024

Effective numbers of deceased donors

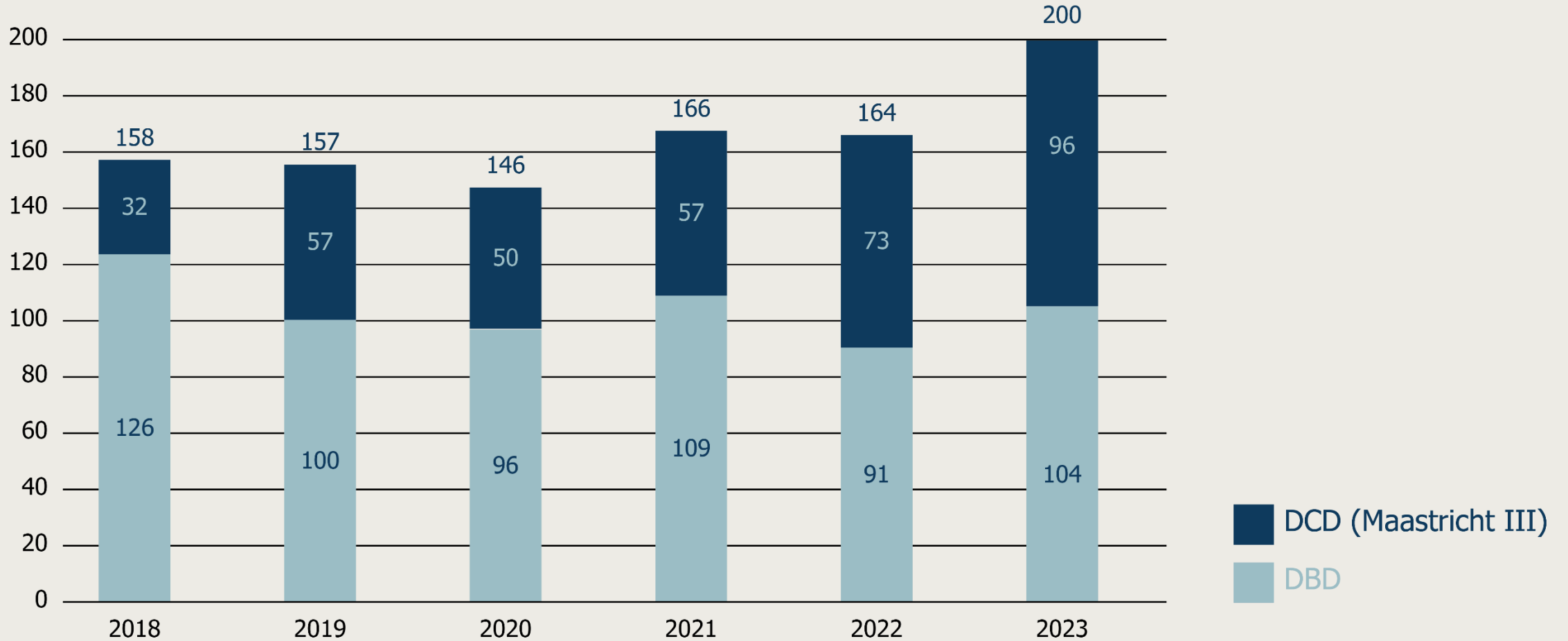


Figure 1: Number of deceased donors in Switzerland. DBD: Donation after brain death following cardiac and circulatory arrest. A donor is any deceased person who has undergone a surgical intervention with the intention of organ produrement for the purpose of transplantation.

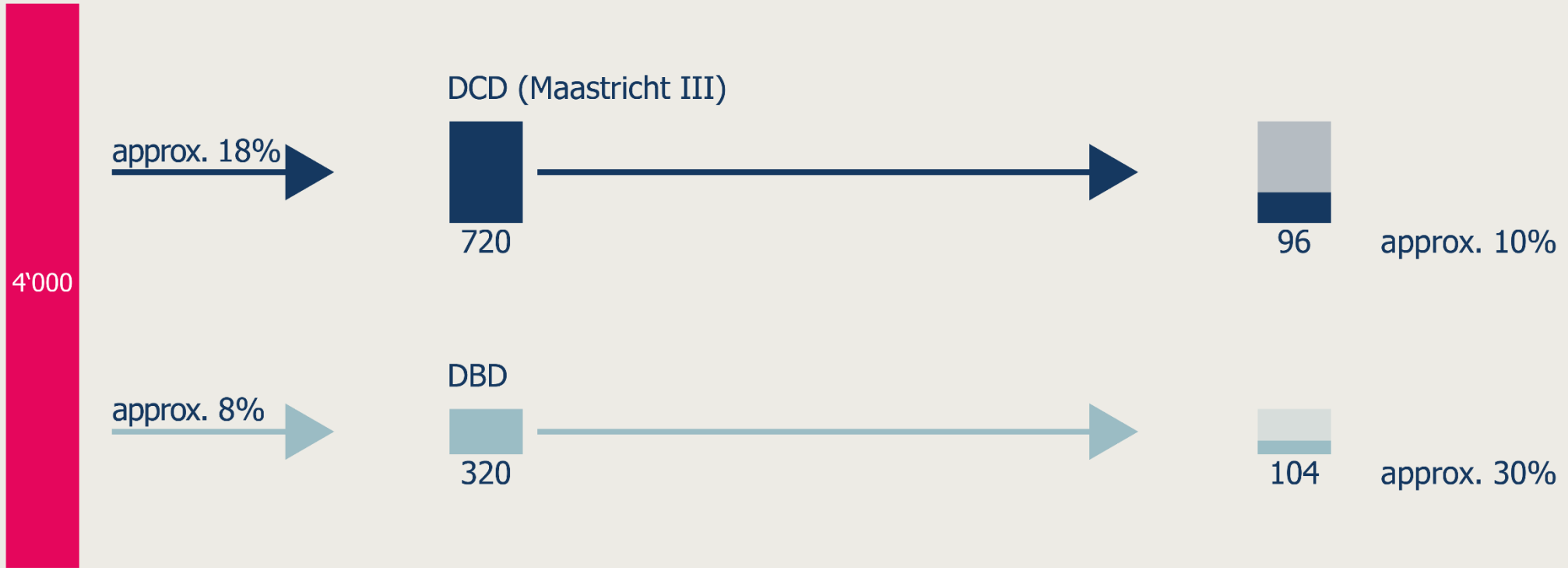
Rate of consent 2023: 42%

Effective organ donors

Potential in %

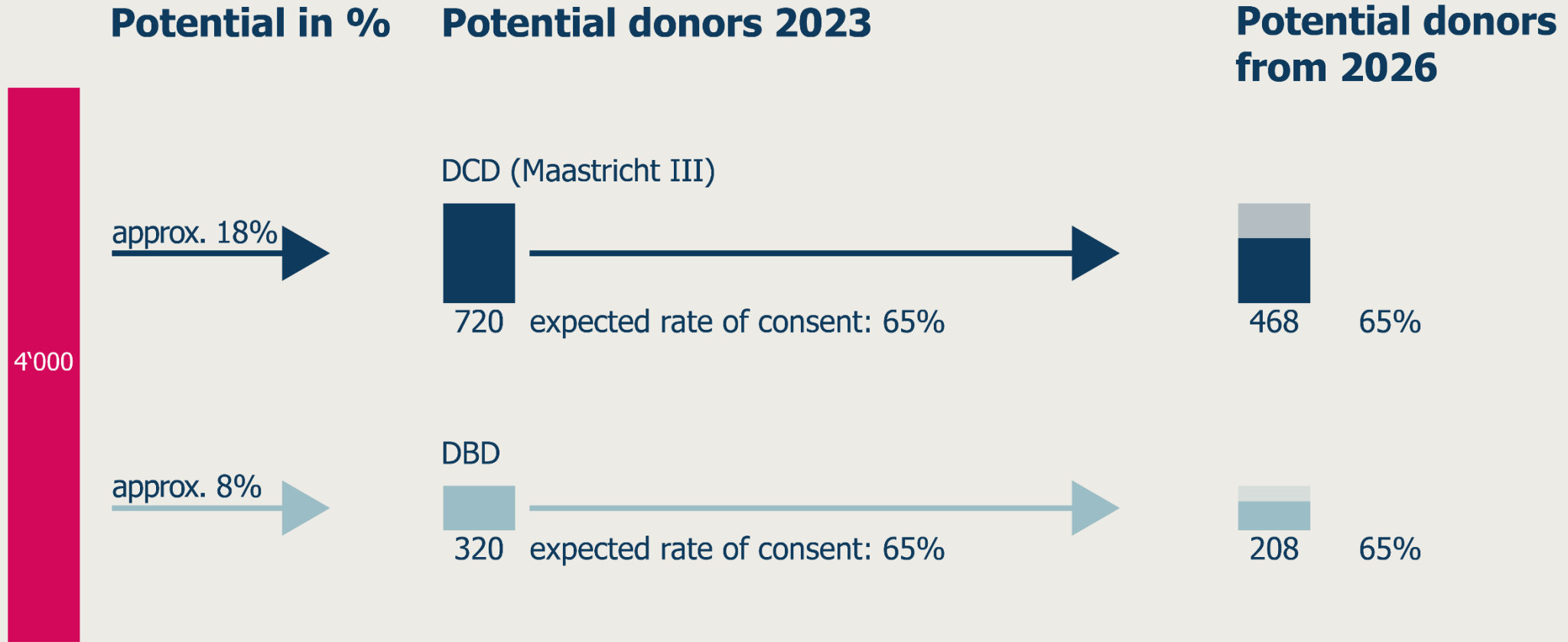
Potential donors 2023

Effective donors 2023



Potential according to SwissPOD
(4'000 deaths/year in ICU)

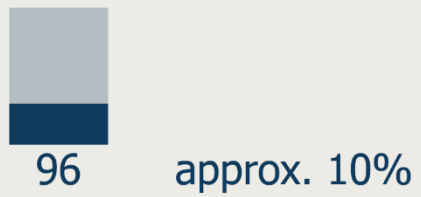
Potential organ donors from 2026 onwards



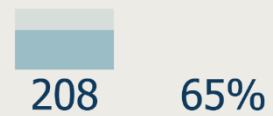
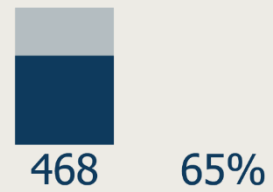
Potential according to SwissPOD
(4'000 deaths/year in ICU)

Organ donation potential Switzerland

Effective donors 2023



Potential donors from 2026



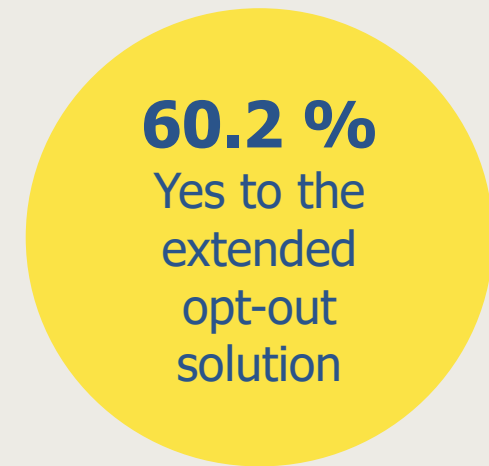
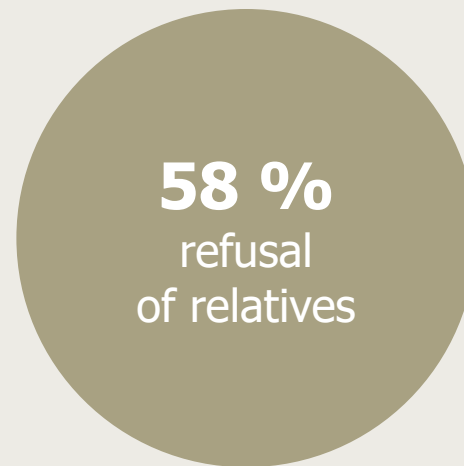
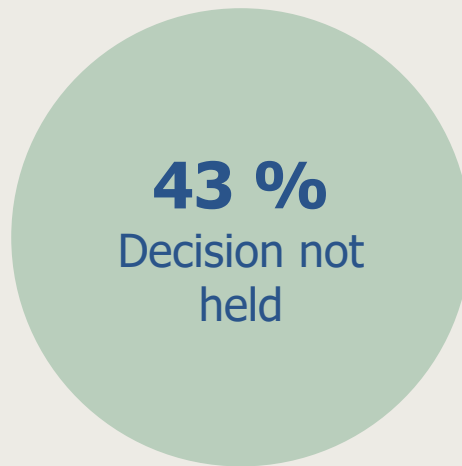
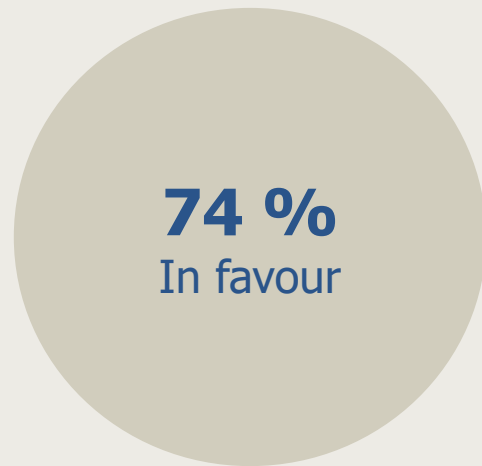


03

Swisstransplant
Organ donation in Switzerland

Facts and figures

Organ donation in Switzerland



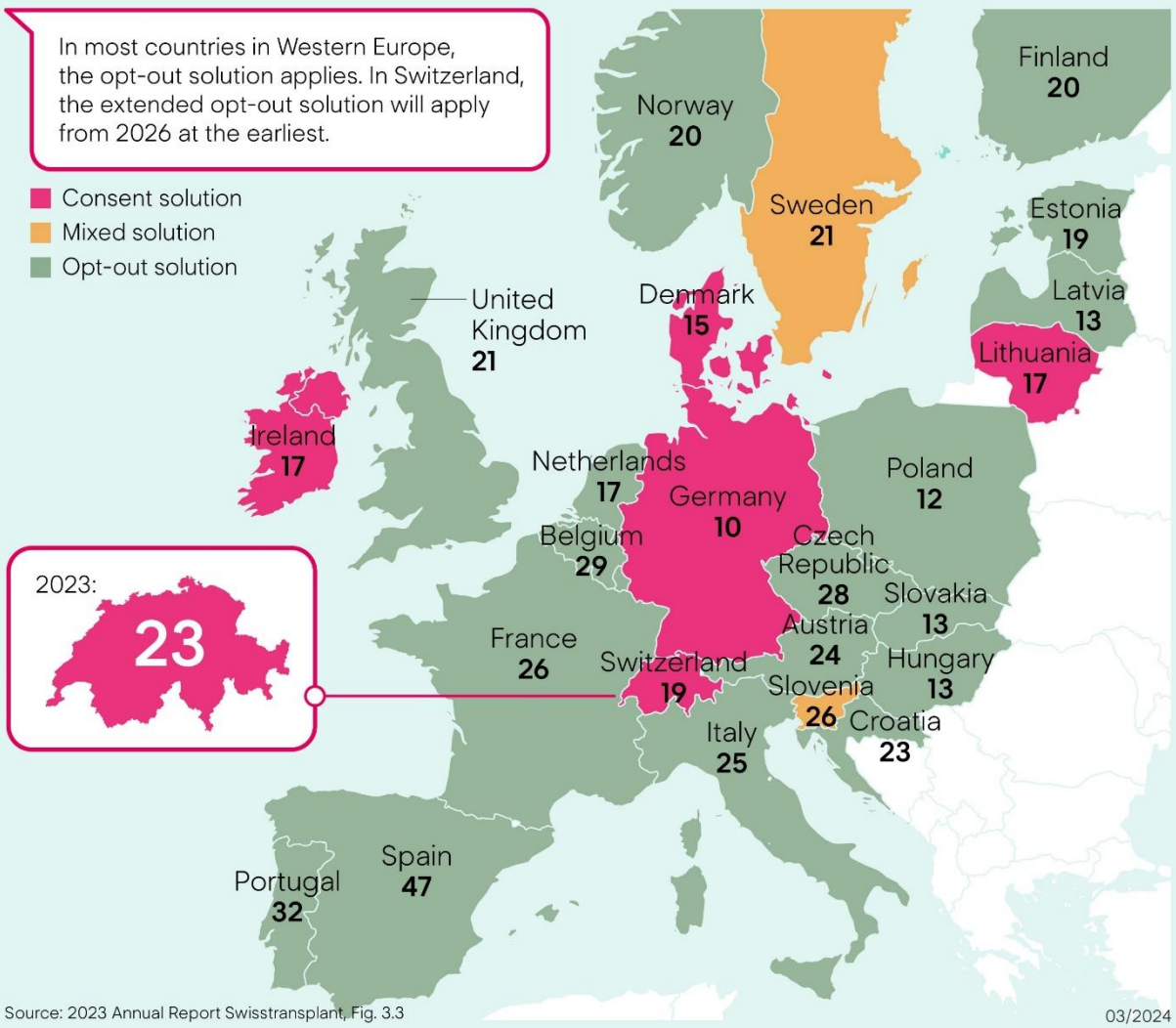
Donation rate in Europe

Number of deceased donors per million inhabitants in 2022

In most countries in Western Europe, the opt-out solution applies. In Switzerland, the extended opt-out solution will apply from 2026 at the earliest.

- Consent solution
- Mixed solution
- Opt-out solution

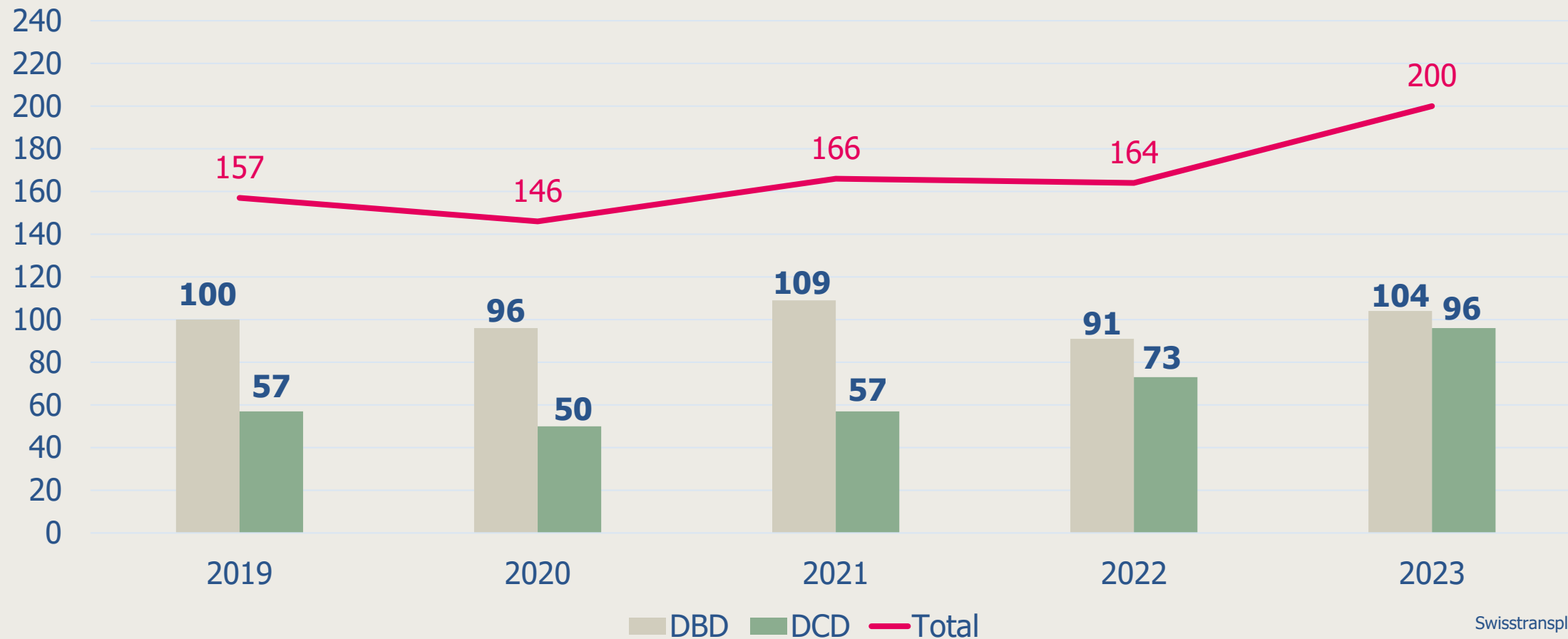
2023:
23



Source: 2023 Annual Report Swisstransplant, Fig. 3.3

03/2024

Swisstransplant annual figures – deceased donors



Post-mortem donation

DBD: donation after brain death

- Brain-dead donor
 - Circulation mechanically stabilized
 - Donation of all organs possible

DCD: donation after cardiocirculatory death

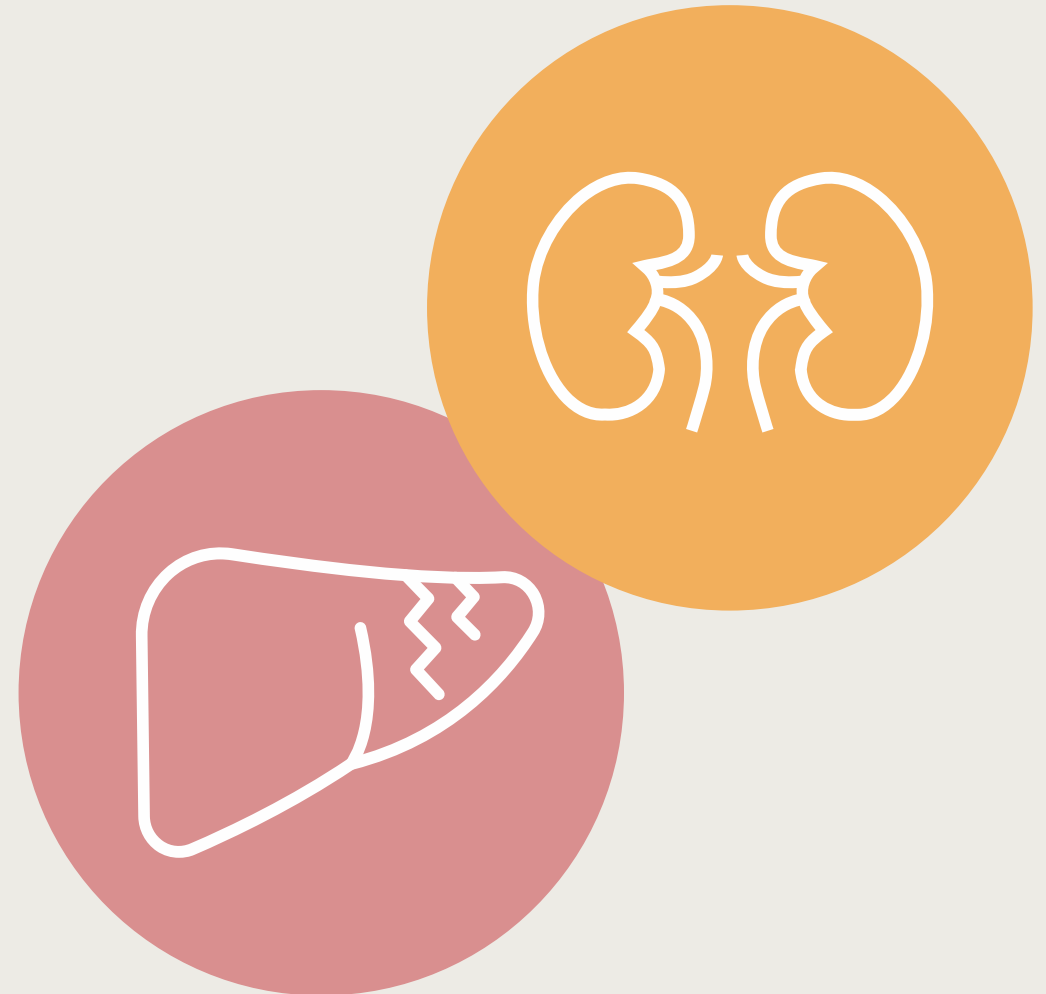
- Non-heart-beating donor
 - Change of therapy – not brain-dead
 - Donation of all organs possible



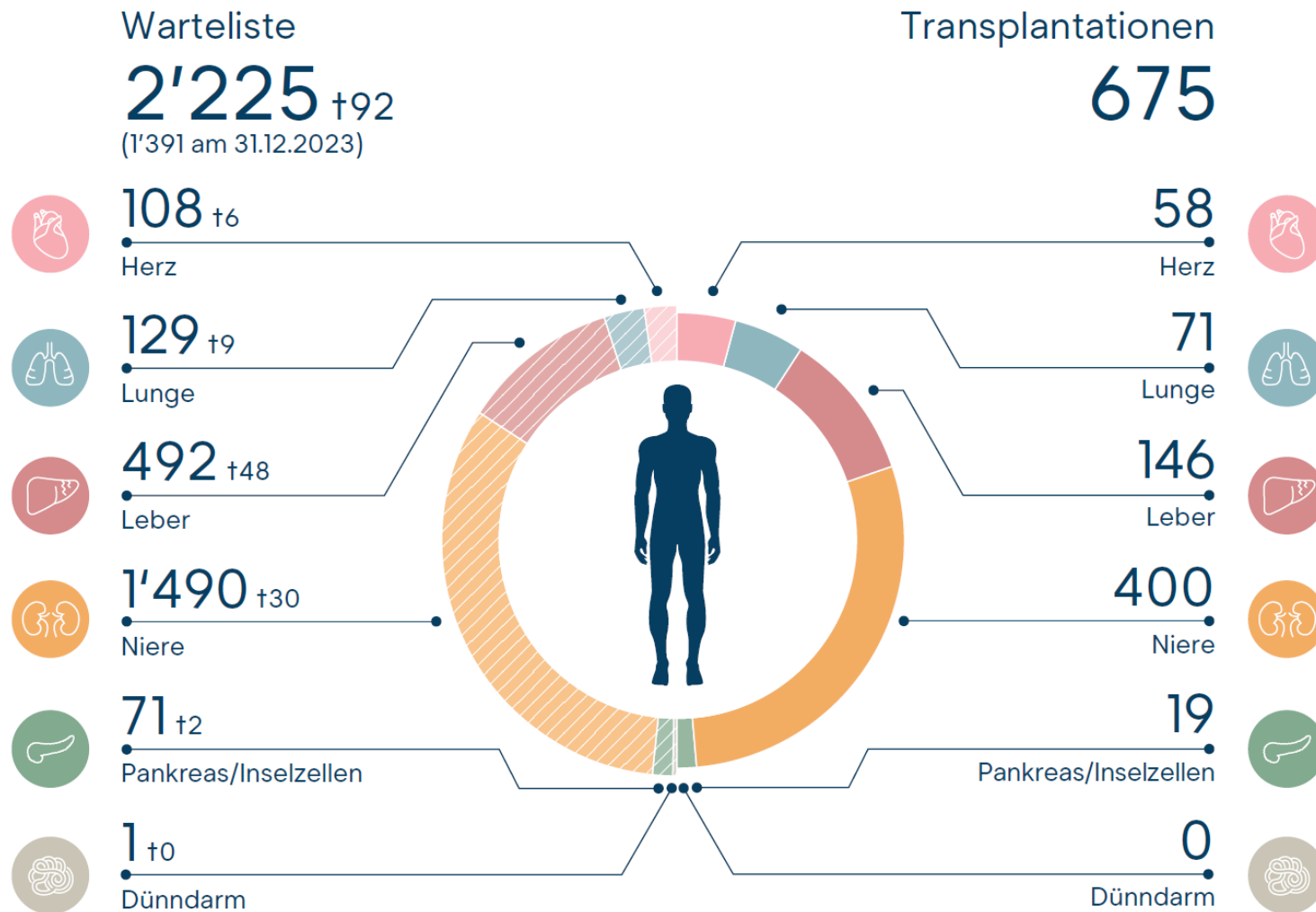
Transplantation through living donation

Living organ donation in Switzerland

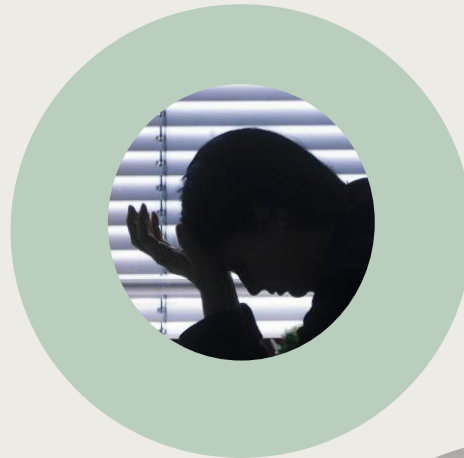
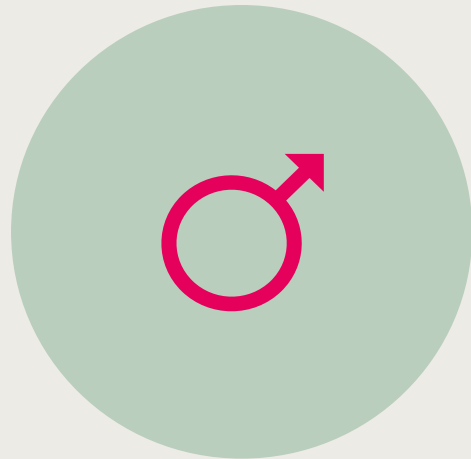
- A kidney or part of the liver
- Directed donation
- Altruistic donation
- Crossed donation



Waiting list and transplantations (1 Jan.–31 Dec. 2023)

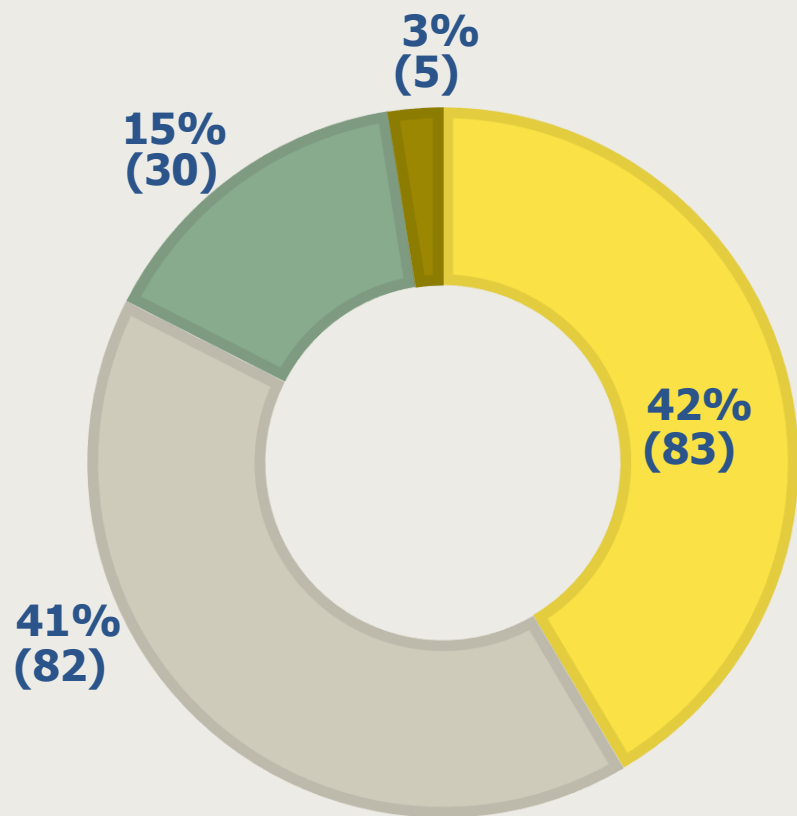


Typical example



**60
years
old**

Causes and frequency of death in organ donors – Distribution in %



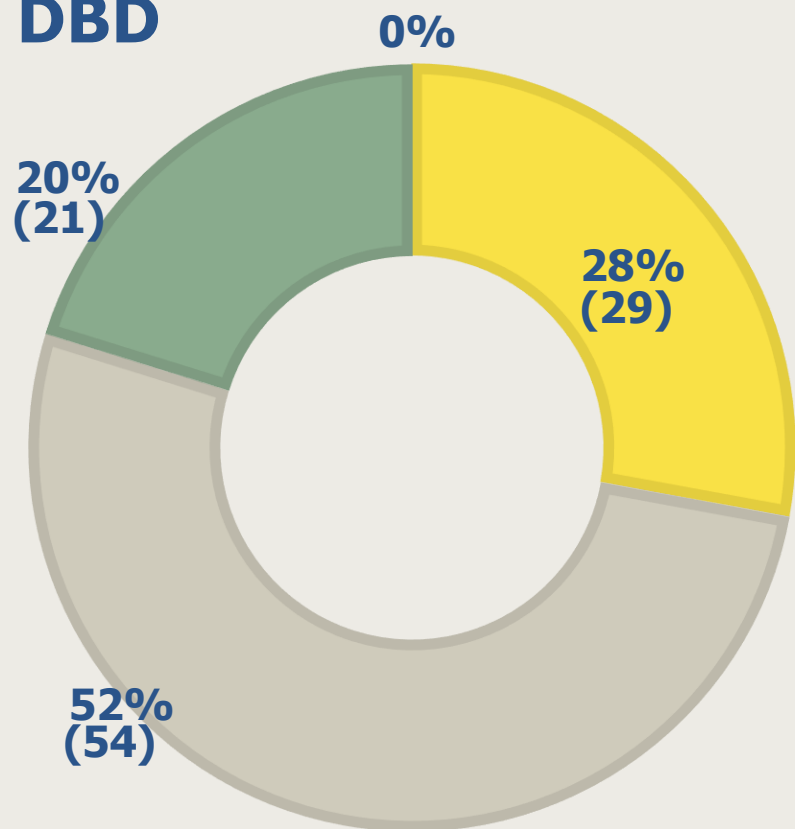
- Anoxia
- Stroke
- Traumatic brain injuries
- Other

n total = 200 donors



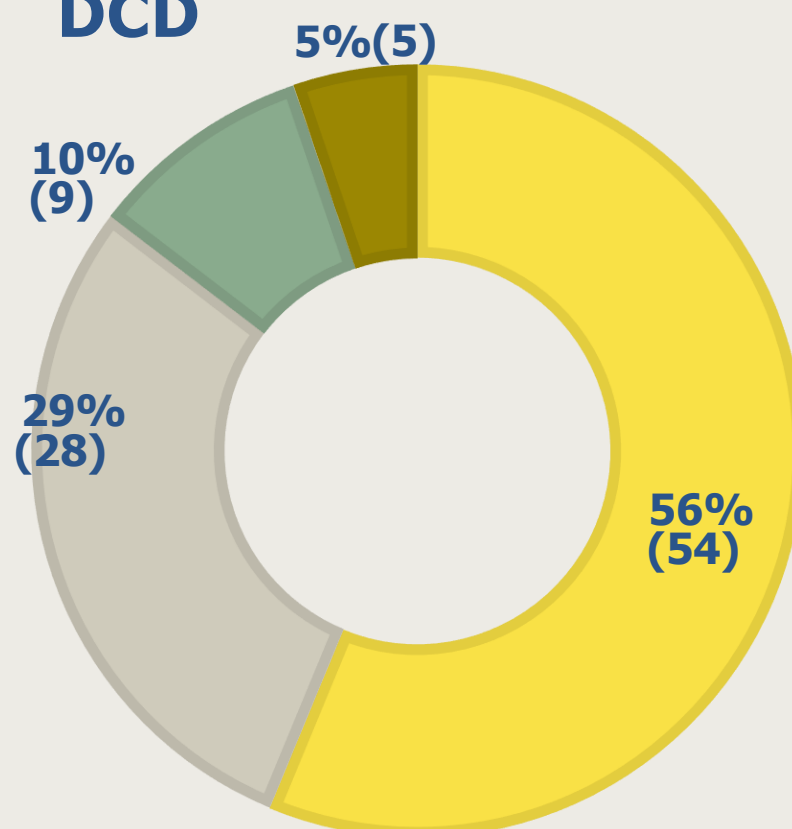
Causes and frequency of death in organ donors – Distribution in %

DBD



n total = 104 donors
rounded values

DCD



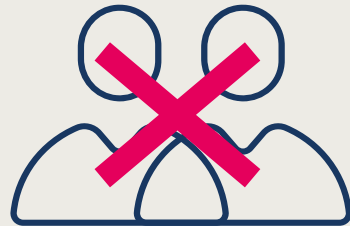
n total = 96 donors

- Anoxia
- Stroke
- Traumatic brain injuries
- Other

Absolute medical contraindications

**Untreatable
sepsis**

**Degenerative
disorder CNS***



Rabies virus, prion disease
(e.g. Creutzfeldt-Jakob
disease CJD)

*CNS = central nervous system

Brain death

Irreversible failure of the brain and brain stem

- The organs receive the oxygen they need to continue functioning through mechanical ventilation.

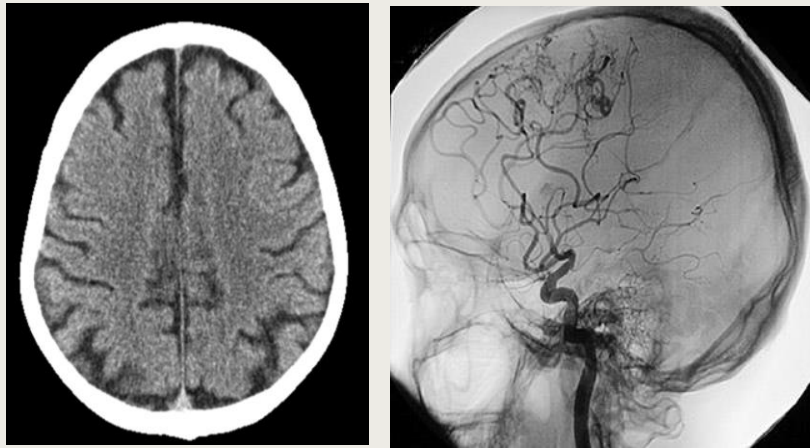
Brain death: not to be confused with coma

- Coma: potentially **reversible** partial lesions of the brain. Patients react to certain stimuli; measurable brain activity.



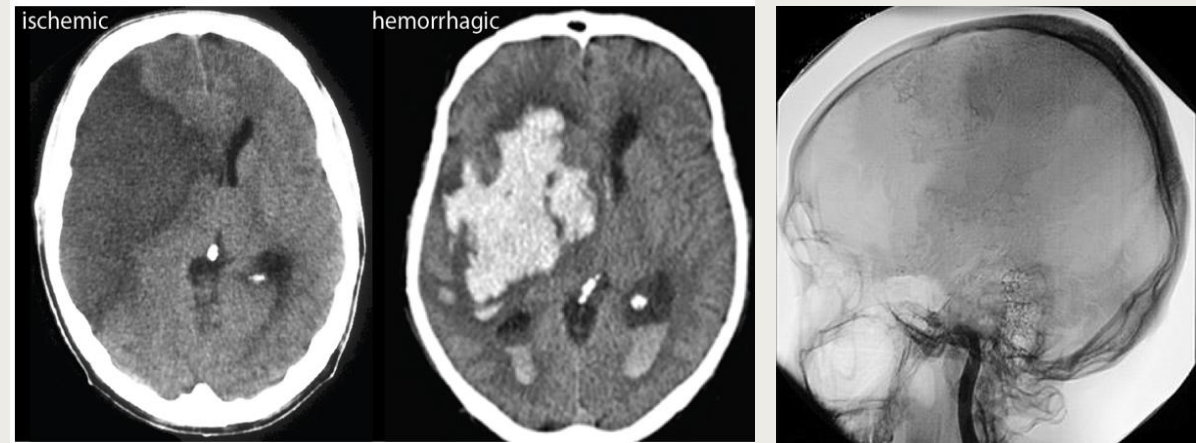
Brain death – diagnosis through imagery

Normal circulation



MRI/angiogram of a brain with normal circulation

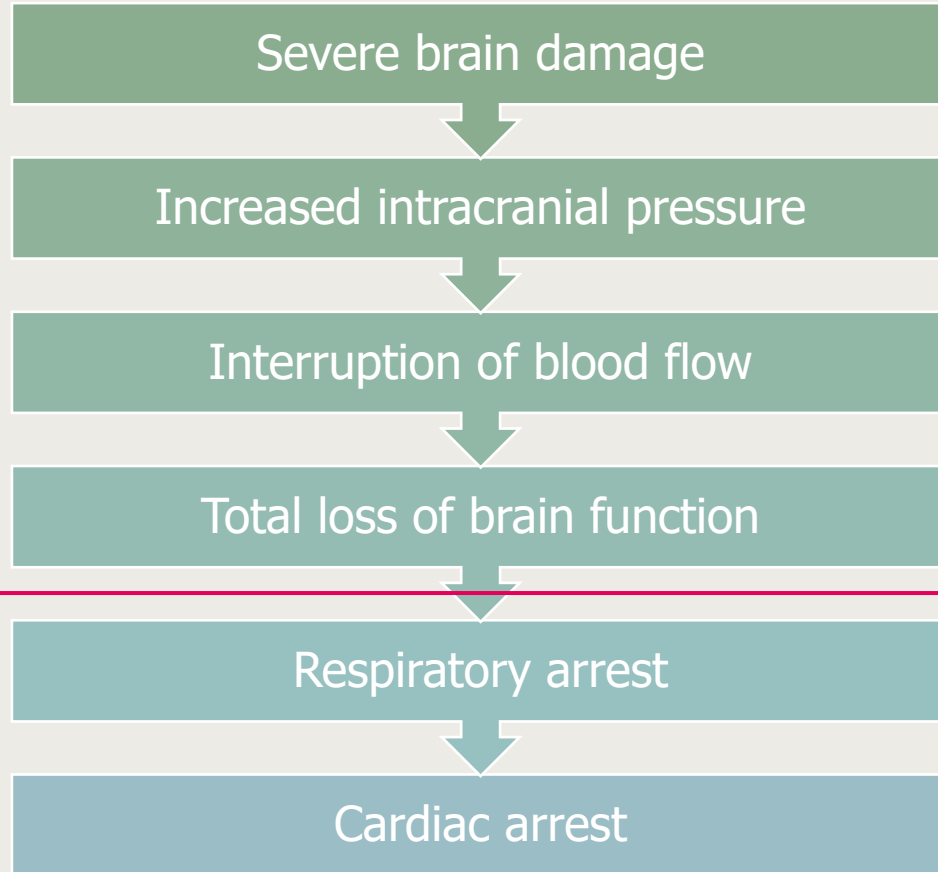
Interrupted circulation



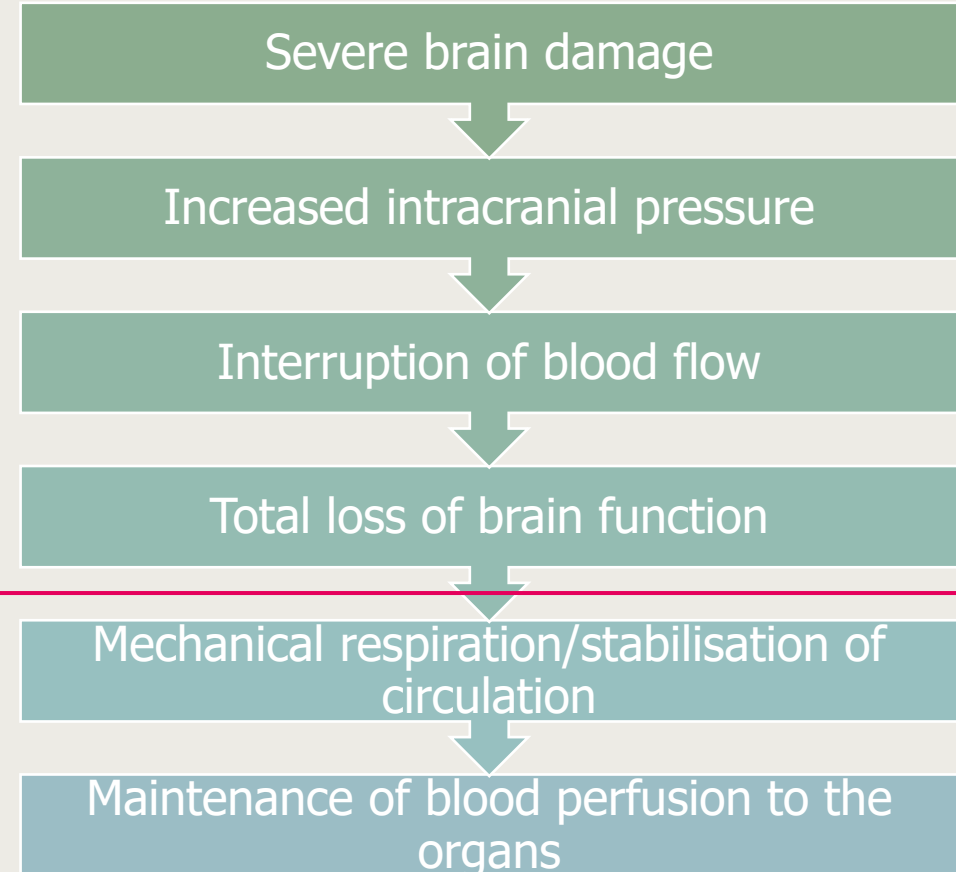
CT scan/angiogram of brain with interrupted circulation

Brain death – natural process vs. process in intensive care unit

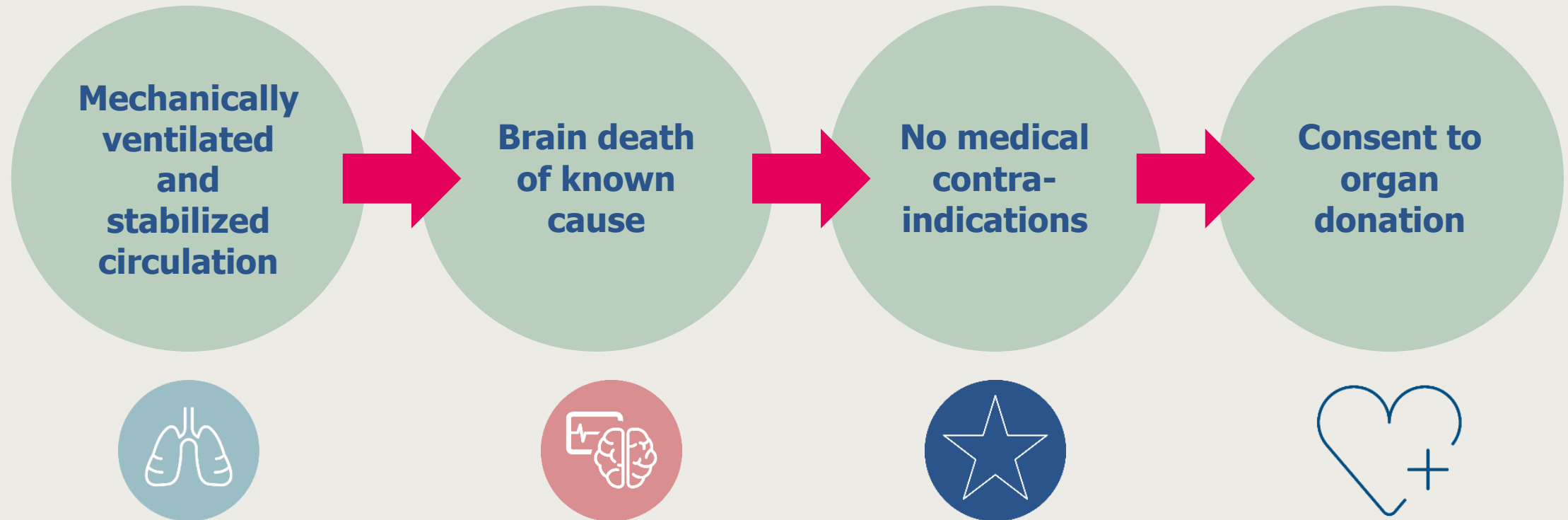
Natural process:



Process in intensive care unit:



Who can be a donor?





04

Swisstransplant
Procedure

Process of organ donation



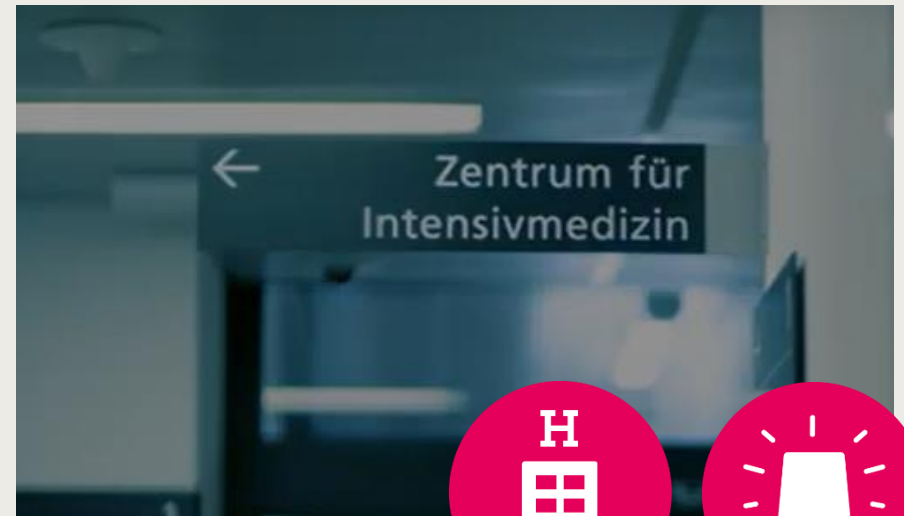
Procedure

1. Hospitalization

2. Intensive care

- Mechanically ventilated
- Medication maintains circulatory function
- If the brain and brain stem functions are irreversibly affected, there is no possible further treatment

Saving the patient is always the priority. Organ donation is only discussed when this is not possible.

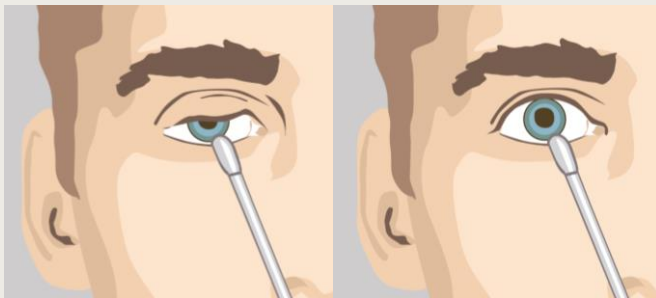


Procedure

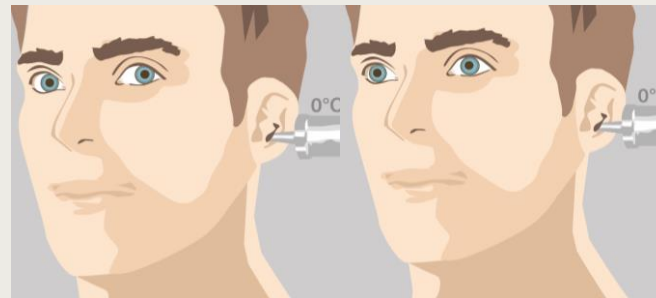
3. Diagnosis of brain death

- Carried out by two impartial specialists who are not involved in the transplant procedure
- 7 clinical signs: brainstem reflex test

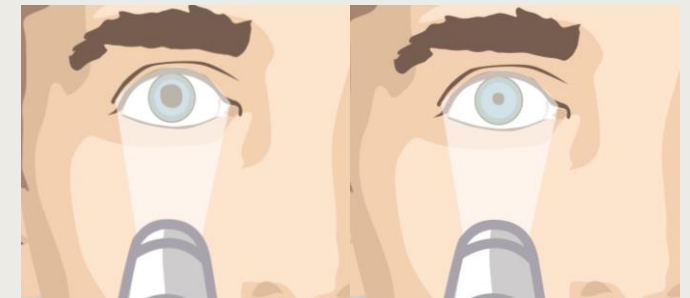
Examples of normal and pathological reactions



Corneal reflex



Vestibulo-ocular reflex



Mydriatic test





Procedure

4. Consent

- First approach: informed of brain death/life-threatening condition
- Second approach: question of wishes of the deceased regarding organ donation

No urgency for the decision



Procedure

5. Discussion with relatives

- Away from the patient's bed
- Announcement of death or hopeless diagnosis and change of treatment
- Organ and tissue donation discussed



6. Time frame

- Maximum of 48 hours between the change of treatment and brain death (otherwise DCD donation)
- Organ procurement must be completed within 72 hours of the diagnosis of brain death



Procedure

7. Swisstransplant

- Permission given
- Brain death/change of treatment
- Data entry of the deceased:
 - Case history
 - Results
 - Laboratory tests
 - Imagery





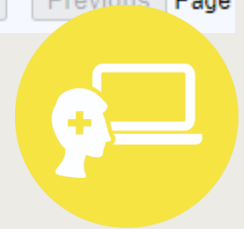
Procedure

8. Waiting list/ranking

- Data entry in the SOAS (Swiss Organ Allocation System)
- Swisstransplant – calculation of the ranking of the potential recipients using SOAS software
- The ranking list depends on donor characteristics

Allocation						
ID, Name	ST-2023-0192 Testlastname T.					Date of birth
Proc. hosp.	BE-INSEL					Weight
HLA	A[2,24(9)] B[7,35] DR[13(6),17(3)] DQ[6(1),7(3)] DP[2,4] CW[10(3),7] DRB3/4/5[DRB3*01,DRB3*02]					ABO
<input checked="" type="checkbox"/> Heart <input checked="" type="checkbox"/> Lung <input checked="" type="checkbox"/> Liver <input checked="" type="checkbox"/> Kidney <input checked="" type="checkbox"/> Pancreas <input type="checkbox"/> Small bowel						
Step 1	04.12.2023 14:14:57		Time base	Non urgent	04.12.2023	
Ext. criteria : No	Donor Type : DBD		Incision made	...	Clamped	
Rank	Alloc Time	MT	Recipient		TC	
1(1)	14:17	U	RS-	Testlastname T.	BE-INSEL	
2	14:18		RS-	Testlastname T.	ZH-USZ	
3	14:18		RS-	Testlastname T.	VD-CHUV	
4	<input checked="" type="checkbox"/> 14:19		RS-	Testlastname T.	ZH-USZ	
5			RS-	Testlastname T.	ZH-USZ	
6			RS-	Testlastname T.	ZH-USZ	
6			RS-	Testlastname T.	VD-CHUV	
6			RS-	Testlastname T.	ZH-USZ	
6			RS-	Testlastname T.	VD-CHUV	
6			RS-	Testlastname T.	ZH-USZ	

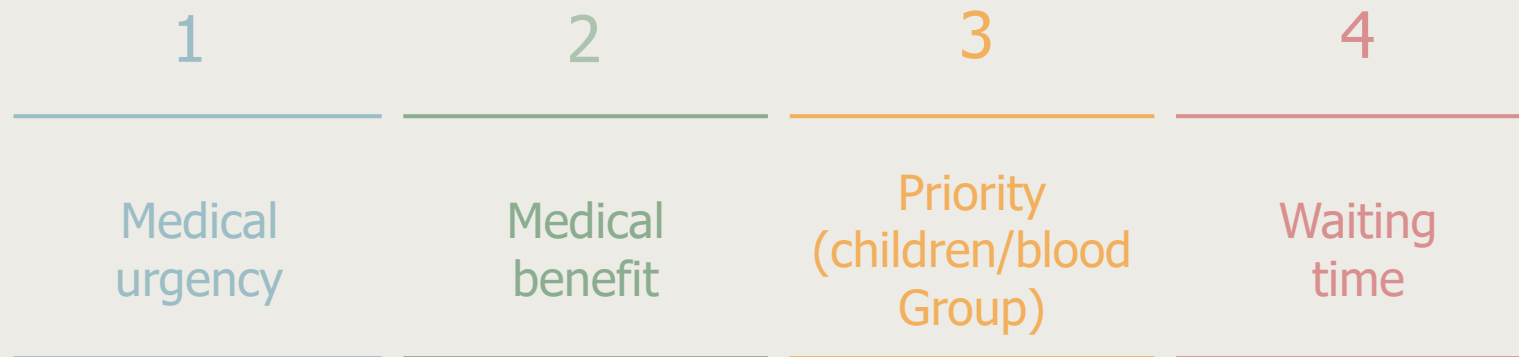
fictitious example SOAS



Procedure

9. Attribution

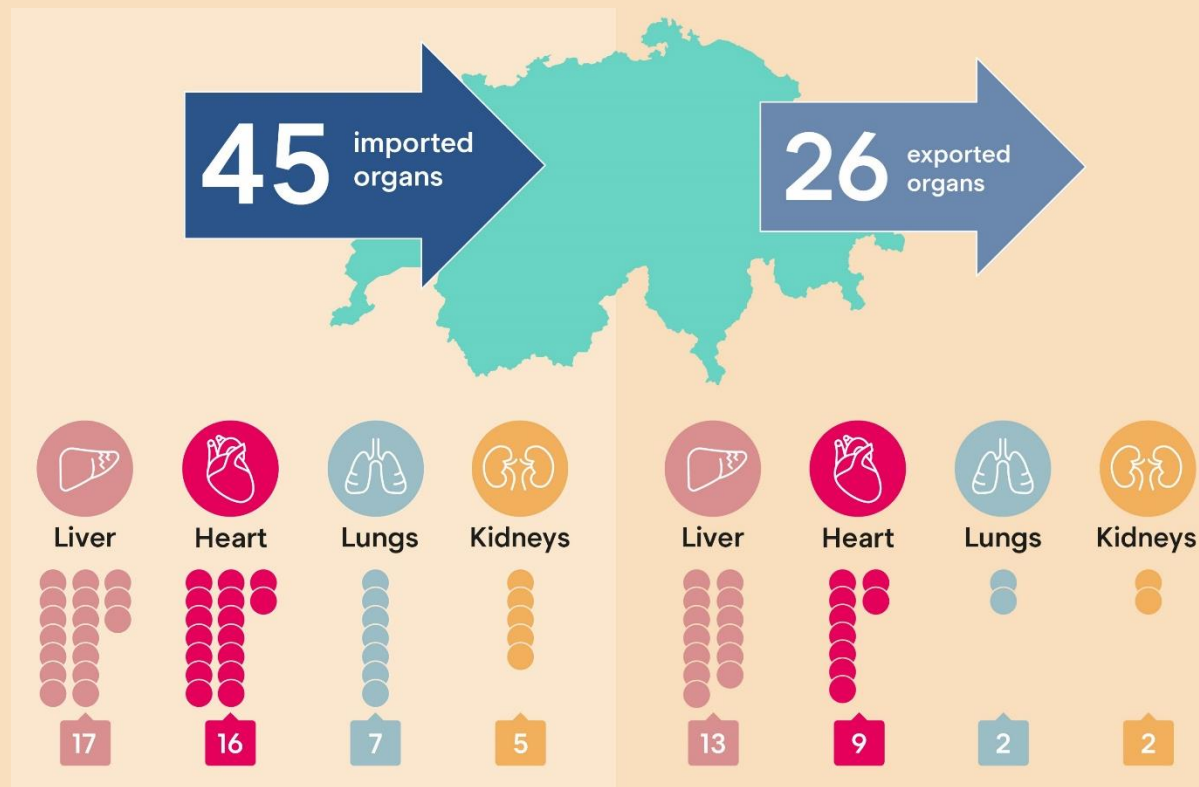
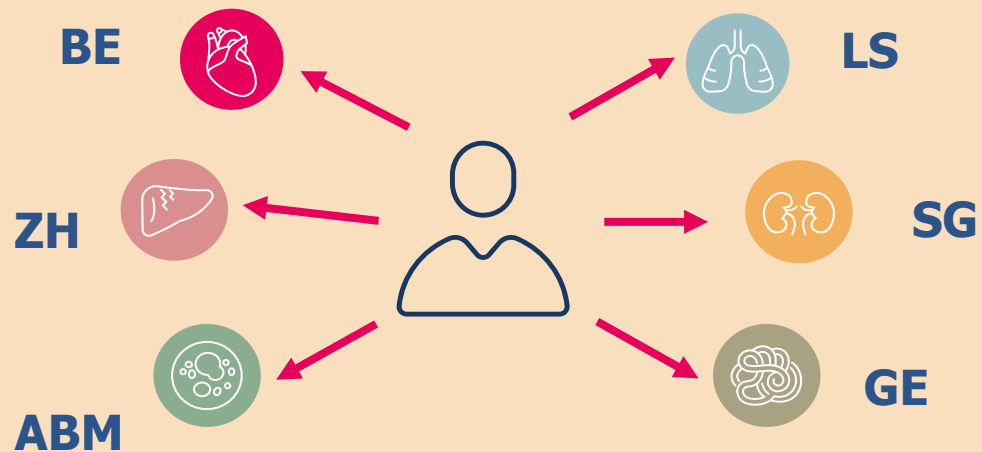
- The ranking list is calculated on the basis of the distribution rules of the law using an algorithm
- Swisstransplant offers organs to centres for potential recipients



Procedure

9. Attribution

- Cooperation with European allocation centres



Annual report Swisstransplant 2023





Procedure

10. Planning

- Timing: everything at the right time and place
- Limiting factors:
 - Availability of operating rooms
 - Anaesthesia team, procurement team
 - Hospital routine
 - Flight time, workload, weather



Procedure

11. Procurement

- Organs procured by surgeons from donor hospital
- Correct conditioning of organs
- Accompanied or unaccompanied transport of organs to recipient hospital



Procedure

12. Transport

- Taxi, ambulance, helicopter, jet
- Ischemia time: the time interval between the interruption of the organ's blood supply in the donor's body and the resumption of the organ's blood flow in the recipient's body

Heart



3–4 h

Lungs/liver/pancreas



6–8 h

Kidneys



12–24 h



20.11.2024



Procedure

13. Transplantation

- Preliminary examinations carried out on the recipient
- Transplantation carried out in transplant centre

After a successful operation, the transplanted organ regains its function.



Organ recipients

- Improved quality of life
- Lifetime medication (immunosuppression)
- Prolongation of life
- Possibility to write an anonymous thank you letter to the donor family



Lara, liver transplant recipient

Organ recipients



Renata, heart recipient



Sébastien, heart recipient



Maurice, kidney recipient



Lorena, heart recipient



Aline, heart recipient



20.11.2024 Samuel, liver recipient



After organ donation

Tissue donation

- In case of death in hospital
- 24–48 hours after death
- Consent
- Categories on donor card
 - Cornea
 - Cardiac valves, large blood vessels
 - Vessels



Corneal transplantation after eye injury,
corneal infections (keratitis)



Saying goodbye

- Possibility for relatives to say goodbye to the deceased
- Funeral organized according to the wishes of the deceased and his or her relatives
- Last respects, cremation or burial possible



Most important principle: dignified treatment both before and after the organ removal.



05

Swisstransplant
Thanks and conclusion

Questions

Thank you!

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CH-3011 Bern
Telefon +41 58 123 80 00

www.swisstransplant.org
info@swisstransplant.org



Ana, lung recipient

Videovorschläge für Ihre Präsentation:

- Swisstransplant Vision und Mission: [Swisstransplant Vision und Mission \(untertitelt\) \(youtube.com\)](#)
- Erklärvideo: Wie funktioniert die Organspende in der Schweiz?: [Erklärvideo: Wie funktioniert die Organspende in der Schweiz? \(youtube.com\)](#)
- Wann ist ein Mensch tot?: [Wann ist ein Mensch tot? \(youtube.com\)](#)
- Digitalisierungsprozess Organspende und -Transplantation: [Digitization process organ donation and transplantation \(youtube.com\)](#)
- Noahs Organspende – Trauer und Hoffnung: [Noahs Organspende – Trauer und Hoffnung \(youtube.com\)](#)
- Ein ganz normales Leben: [Ein ganz normales Leben / Une vie absolument normale / Una vita assolutamente normale \(youtube.com\)](#)