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DONORSKA IN TRANSPLANTACIJSKA DEJAVNOST V SLOVENIJI
DONATION AND TRANSPLANTATION ACTIVITY IN SLOVENIA

DAJ ŽIVLJENJU PRILOŽNOST

GIVE LIFE A CHANCE

2020

DAJ
Življenju priložnost

Donorska in transplantacijska dejavnost
v Sloveniji v letu 2020

slovenija transplant

GIVE
Life a chance

Donation and transplantation activity
in Slovenia in 2020

Daj življenju priložnost - Donorska in transplantacijska dejavnost v Sloveniji v letu 2020

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Give life a chance – Donation and transplantation activity in Slovenia in 2020

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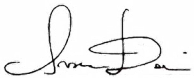
Uvodne besede

V letni publikaciji Daj življenju priložnost predstavljamo statistične podatke in izbrane presežke v donorski in transplantacijski dejavnosti v 2020. Lansko leto smo obeleževali pomembno 20. obletnico uspešnega sodelovanja Slovenije z Eurotransplantom. Že leta 2000 smo izpolnili zahtevne priključitvene pogoje in se pridružili skupini najnaprednejših srednjeevropskih držav s področja donorske in transplantacijske dejavnosti. S članstvom smo občutno izboljšali izide zdravljenja za naše bolnike in spodbudili razvoj dejavnosti na nacionalni ravni. Središčni slavnostni simpozij smo januarja v sodelovanju z UKC Ljubljana uspeli izpeljati še v živo.

Poleg praznovanja obletnice pa je leto 2020 zaznamovalo delo v oteženih razmerah zaradi epidemije covid-19. Zelo smo zadovoljni, da smo kljub krizni situaciji ohranili zagon v donorskem programu. Potrebno je bilo nenehno spodbujanje in trud sodelavcev in sodelavk, redna in dobra medosebna komunikacija ter prilagajanje preventivnim protokolom v mednarodnem območju držav Eurotransplanta. Ves čas nas je vodilo zavedanje, da epidemija ne sme zaustaviti dejavnosti, da pridobljeni organi ne smejo v uničenje, in da je bolnikom na čakalnih seznamih treba zagotoviti zdravljenje s presaditvijo.

Leto smo kljub vsem težavam v zdravstvu in oviram zaključili z višjim številom umrlih darovalcev in transplantacij kot v letu 2019. S tem se tudi na mednarodni ravni uvrščamo med najboljše države s področja. Ponovno smo dokazali kakovosten pristop, predanost delu in dobro povezanost vseh strokovnjakov v nacionalni transplantacijski mreži.

Iskreno se zahvaljujemo tudi vsem svojcem umrlih, ki so v čustveno zahtevnih situacijah ohranili humanost, čut za sočloveka in podali soglasje za darovanje.



Prim. Danica Avsec, dr. med., svetnica,
direktorica zavoda Slovenija-transplant in odgovorna zdravnica za donorsko dejavnost

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Slovarček temeljnih izrazov

BOLNIŠNIČNA KRVNA BANKA: enota, ki v bolnišnici shranjuje in razdeljuje kri ter krvne komponente in opravlja predtransfuzijsko testiranje ter bolnišnične transfuzijske dejavnosti. Za zbiranje krvi torej ni pooblaščena.

BOLNIŠNIČNI TRANSPLANTACIJSKI KOORDINATOR: zakon določa način imenovanja, naloge bolnišničnih koordinatorjev in pravilnik o koordinatorjih. Naloge bolnišničnih transplantacijskih koordinatorjev so: organizacija in koordinacija dela na vseh področjih transplantacijske dejavnosti v bolnišnici, od odkrivanja možnih mrtvih darovalcev do organizacije in koordinacije odvzemov v bolnišnici ter pospeševanje programa pridobivanja organov in tkiv za presaditev. Delo opravljajo zdravniki specialisti, ki so pridobili dodatna znanja o vseh področjih transplantacijske dejavnosti v bolnišnici oz. donorskem centru.

CENTRALNI TRANSPLANTACIJSKI KOORDINATOR: zdravnik z dodatnimi znanji, ki organizira in koordinira transplantacijsko dejavnost od zaznave možnega darovalca do odvzema. Centralni transplantacijski koordinatorji so v pripravljenosti 24 ur na dan vse dni na leto.

ČAKALNI SEZNAM (PREJEMNIKOV): zbirka podatkov zaporedno vpisanih pacientov, ki čakajo na presaditev z namenom zdravljenja. Indikacije za presaditev so za vsak organ/tkivo/celico specifične.

DAROVALEC: oseba, ki daruje del telesa za namen zdravljenja, ne glede na to, ali do darovanje pride za časa življenja ali po njeni/njegovi smrti.

DAROVANJE: darovanje dela telesa, namenjenega za zdravljenje s presaditvijo.

DEJANSKI UMRLI DAROVALEC: aktiven darovalec, od katerega je bil presajen vsaj en organ.

DODELJEVANJE: postopek, po katerem se izbere najustreznejšega prejemnika.

DONORSKA BOLNIŠNICA ALI CENTER: javnozdravstveni zavod ali enota tega zavoda, ki izvaja dejavnost pridobivanja delov telesa za namen zdravljenja s presaditvijo.

HUD NEŽELEN DOGODEK: kateri koli neželen ali nepredviden dogodek v zvezi s katero koli stopnjo postopka darovanja do presaditve, ki lahko povzroči prenos nalezljive bolezni, smrt, ogrozi življenje, povzroči invalidnost ali nezmožnost za delo, katerega posledica je hospitalizacija ali obolevnost, ali ki podaljša hospitalizacijo ali obolevnost.

HUDA NEŽELENA REAKCIJA: nenameren odziv, vključno s pojavom prenosljive bolezni, pri živem darovalcu ali prejemniku, ki bi lahko bil povezan s katero koli stopnjo postopka od darovanja do presaditve, ki je smrten, smrtno nevaren, ki povzroča invalidnost ali nezmožnost za delo, ali katerega posledica je hospitalizacija ali obolevnost ali ki podaljša hospitalizacijo ali obolevnost.

INTENZIVNO ZDRAVLJENJE/INTENZIVNA NEGA: zdravljenje, ki zahteva hitro odzivno diagnostiko, terapijo, nego in stalni nadzor življenjskih funkcij bolnika ponavadi v enoti za intenzivno zdravljenje.

MOŽEN UMRLI/MRTVI DAROVALEC: oseba, katere klinično stanje kaže na verjetnost, da izpolnjuje merila za možgansko smrt.

NACIONALNA IDENTIFIKACIJSKA ŠTEVILKA DAROVALCA OZIROMA PREJEMNIKA: identifikacijska oznaka, ki jo v skladu z nacionalnim sistemom identifikacije darovalcu ali prejemniku dodeli Slovenija-transplant in služi kot povezovalni znak, prek katerega se sledi darovalcu in prejemniku organa, zlasti pri izmenjavi podatkov med donorskimi centri, transplantacijskimi centri in drugimi državami članicami Evropske unije.

PRIMEREN UMRLI/MRTVI DAROVALEC: medicinsko ustrezna oseba, pri kateri je bila ugotovljena smrt na podlagi nevroloških meril, glede na relevantno zakonodajo.

SLEDLJIVOST: možnost, da se najde in identificira organ v vseh fazah preskrbe z organi ali uničenja, vključno z možnostjo, da se identificirata darovalec in donorski center, poiščejo prejemniki pri transplantacijskem centru ter identificirajo vsi pomembni neosebni podatki v zvezi s proizvodi in materiali v stiku z organom.

STOPNJA ODKLONITVE: odstotek odklonitev svojcev oz. oseb, ki so blizu umrlemu, za darovanje po smrti.

STOPNJA ZAVRNITEV: odstotek zavrnitev presadka pri prejemniku.

TRANSPLANTACIJSKA DEJAVNOST: zdravstvena dejavnost, ki vključuje postopke darovanja, pridobivanja, testiranja in razdeljevanja organov ter darovanja, pridobivanja, testiranja, predelave, konzerviranja, shranjevanja in razdeljevanja tkiv in celic za potrebe zdravljenja s presaditvijo.

TRANSPLANTACIJSKI CENTER: javnozdravstveni zavod ali enota tega zavoda, ki izvaja dejavnost zdravljenja s presaditvijo organov.

TRANSFUZIJSKI CENTER: organizacijska enota, ki je v bolnišnici odgovorna za zbiranje krvi, testiranje, predelavo zbrane krvi v krvne komponente in njihovo shranjevanje. Izvaja predtransfuzijsko testiranje in bolnišnične transfuzijske dejavnosti ter bolnišnice in druge porabnike oskrbuje s krvjo in krvnimi komponentami.

TRANSFUZIJSKI ZAVOD OZIROMA ZAVOD RS ZA TRANSFUZIJSKO MEDICINO V LJUBLJANI: na državni ravni odgovoren za strokovno raven preskrbe s krvjo in krvnimi pripravki ter povezovanje transfuzijske medicine z bolnišnično dejavnostjo. Zavod usklajuje vse dejavnosti v zvezi z izbiro krvodajalcev, zbiranjem, testiranjem, predelavo, hrambo in razdeljevanjem krvi ter krvnih pripravkov, klinično rabo krvi in nadzorom nad težkimi neželenimi dogodki oziroma reakcijami v zvezi s transfuzijo krvi. Zavod RS za transfuzijsko medicino na državni ravni usklajuje in povezuje mrežo bolnišničnih transfuzijskih oddelkov in bolnišničnih krvnih bank, vodi enoten informacijski sistem, strokovno izobraževanje in razvojno-raziskovalno dejavnost ter sodeluje z mednarodnimi organizacijami, zvezami in sorodnimi zavodi v drugih državah.

Zavod Slovenija-transplant

Javni zavod Republike Slovenije za presaditve organov in tkiv Slovenija-transplant je od leta 2002 osrednja nacionalna strokovna ustanova, ki povezuje, koordinira, pospešuje ter nadzira donorsko in transplantacijsko dejavnost v Sloveniji. V zavodu Slovenija-transplant je centralna koordinacijska pisarna nacionalne transplantacijske mreže, ki je bila ustanovljena leta 1998. Nacionalno mrežo sestavlja enajst donorskih bolnišnic po Sloveniji, Center za transplantacijsko dejavnost v UKC Ljubljana in Center za tipizacijo tkiv, ki deluje v sklopu Zavoda RS za transfuzijsko medicino. Nacionalna mreža omogoča delovanje donorskega in prejemniškega programa ter zagotavlja, da imajo dostop do zdravljenja s presaditvijo vsi, ki ga potrebujejo. Mreža deluje nepretrgoma, zato so strokovne ekipe v pripravljenosti 24 ur na dan, vse dni v letu.

Od leta 2000 je Slovenija vključena v neprofitno organizacijo za izmenjavo organov in tkiv Eurotransplant. Z izpolnjevanjem zahtevnih vstopnih pogojev se je prva iz regije priključila veliki skupini petih uspešnih držav na področju zdravljenja s presaditvijo, t. j. Nemčiji, Avstriji, Belgiji, Luksemburgu in Nizozemski. Od leta 2002 je Slovenija-transplant nosilec pogodbe z Eurotransplantom. Eurotransplant danes združuje 8 držav in prek 137 milijonov prebivalcev, sedež ima v Leidnu na Nizozemskem. Članstvo je pomembno za naše bolnike, saj so se s priključitvijo bistveno izboljšale možnosti preživetja in izidi zdravljenja s presaditvijo, predvsem v visoko urgentnih, življenjsko ogrožajočih stanjih, kot sta akutna odpoved delovanja srca in jeter, ter v drugih posebnih primerih (npr. otroci, hipersenzibilizirani bolniki). S sodelovanjem so se tudi občutno zmanjšali čakalni seznami, nacionalni transplantacijski programi so se razmahnili, izvajati smo začeli kombinirane presaditve. Predvsem pa smo lahko omogočili optimalnejšo tkivno skladnost med darovalcem in prejemnikom. Nekateri bolniki zaradi tkivne neskladnosti ustreznega organa v Sloveniji sploh ne bi dočakali. V letu 2020 smo obeleževali pomembno 20. obletnico uspešnega sodelovanja z Eurotransplantom.

Zavod Slovenija-transplant se od ustanovitve naprej nenehno razvija v skladu s priporočenimi mednarodnimi smernicami. Stremimo k ustvarjanju izobražene in motivirane strokovne javnosti ter z večplastnim komuniciranjem vztrajno povečujemo zaupanje v transplantacijsko medicino med splošno javnostjo. Preko članstev v mednarodnih strokovnih odborih in s sodelovanjem v evropskih projektih smo tesno vpeti v mednarodno okolje, tudi kot aktivni soustvarjalci strategij, razvoja in izobraževanja strokovnjakov v donorski in transplantacijski dejavnosti na mednarodnem področju. Ostajamo mednarodno prepoznan in zgleden primer za varen in učinkovit način organizacije in vodenja nacionalnega donorskega programa.

Pri urejanju in vodenju področja pridobivanja in uporabe delov človeškega telesa za namen zdravljenja v Slovenija-transplantu dosledno upoštevamo zakonodajo, evropske direktive in sprejete mednarodne konvencije. Prav tako skrbimo za ustrezno posodabljanje nacionalne zakonodaje in strokovnih protokolov. Ob uvajanju sprememb vključujemo predloge in odločitve zdravstvene stroke, kritične družbene premisleke ter načela medicinske etike in deontologije.

Ključne smernice delovanja zavoda so: samozadostnost | enakost in varnost za bolnike | optimalna učinkovitost | kakovost | sledljivost | profesionalnost | nekomercialnost | transparentnost | prostovoljno darovanje | preprečevanje zlorab.

Slovenija-transplant od ustanovitve vodi prim. Danica Avsec, dr. med, svetnica in odgovorna zdravnica za donorsko dejavnost. Zavod deluje pod okriljem Ministrstva RS za zdravje. V letu 2020 je bilo v organizaciji devet redno zaposlenih, v donorskem programu pa je sodelovalo 90 pogodbenih sodelavcev.

www.slovenija-transplant.si
@SloTransplant

Presežki in zaznamki leta 2020

Uspešno soočanje z izzivi ob epidemiji covid-19

Število umrlih darovalcev in transplantacij organov je bilo v primerjavi z letom 2019 višje. Kljub omejitvam v mednarodnem prometu, logistiki in različnih epidemioloških ukrepih v državah, smo z dodatnimi napori nepretrgoma zagotavljali sodelovanje in izmenjavo organov in tkiv z državami v Eurotransplantu.

Odlično sodelovanje z mediji

Objavili smo več kot 40 poglobljenih časopisnih intervjujev in se več kot 180-krat pojavili v medijih. V sodelovanju z RTV Slovenija smo pripravili 12-minutno dokumentarno televizijsko oddajo.

Visoka stopnja soglasja za darovanje

Opravili smo 70 pojasnilnih pogovorov s svojci umrlih glede darovanja organov. Velika večina (76 %) je podala soglasje, kar kaže na visoko zaupanje javnosti v našo dejavnost.

Premikanje strokovnih mejnikov v nacionalnem programu za presaditev pljuč v UKC Ljubljana

V UKC Ljubljana so opravili prvo presaditev pljuč pri pediatrični bolnici, 34-letniku pa presadili pljuča, ki so mu dokončno odpovedala zaradi zapletov po covidu-19. Gre za vrhunski strokoven uspeh tudi v mednarodnem okolju.

50 let od prve presaditve ledvice

Od prve presaditve organa - ledvice živega darovalca - v Sloveniji, pa tudi na področju nekdanje Jugoslavije, je minilo natanko 50 let.

Kontinuirani uspehi v nacionalnem programu za presaditev srca v UKC Ljubljana

Slovenija se po številu presaditev src na milijon prebivalcev že vrsto let uvršča v sam svetovni vrh.

Nova informativna zgibanka o darovanju organov in tkiv

Zasnovali in natisnili smo nove informativne zgibanke z osnovnimi informacijami in pojasnili glede darovanja organov in tkiv. Vsebina je zanimiva in uporabna za splošno javnost, za zdravstveno osebje na primarni ravni in za medije. 13.000 izvodov zgibank smo razširili v zdravstvene domove po Sloveniji.

Slavnostni simpozij ob 20. obletnici uspešnega sodelovanja z Eurotransplantom

Januarja smo s slavnostnim simpozijem v sodelovanju z UKC Ljubljana obeležili 20. obletnico odličnega sodelovanja z Eurotransplantom.

Podpis nove pogodbe o sodelovanju z UKC Ljubljana

Po 17. letih smo z UKC Ljubljana podpisali novo pogodbo o sodelovanju na področju donorske in transplantacijske dejavnosti. Pogodba prinaša novosti predvsem z jasno definicijo in razdelitvijo nalog med vsemi deležniki v donorskem in transplantacijskem programu, na novo pa je definirana tudi vloga bolnišničnega transplantacijskega koordinatorja v UKC Ljubljana in razdelitev stroškov med UKC Ljubljana in Slovenija-transplantom.

Nižje število opredelitev

V nacionalni register opredeljenih oseb glede posmrtnega darovanja se je kljub možnosti opredelitve po elektronski poti vpisalo 40 % manj oseb kot v letu 2019.

20 let uspešnega sodelovanja Slovenije z Eurotransplantom

V letu 2020 smo obeleževali pomembno 20-letnico uspešnega sodelovanja Slovenije z Eurotransplantom (ET), mednarodno neprofitno organizacijo za izmenjavo organov in tkiv. Slovenija je bila prva država iz regije JV Evrope, ki je že leta 2000 izpolnila zahtevne pogoje in bila sprejeta v ET. S tem se je priključila veliki skupini petih uspešnih in naprednejših držav s področja zdravljenja s presaditvijo (Nemčiji, Avstriji, Belgiji, Nizozemski, Luksemburgu). Organizacija danes združuje osem držav, ki imajo skupaj prek 137 milijonov prebivalcev.

Dolžnost vsake države in zdravstvenega sistema je, da bolnikom zagotovi dostop do kakovostnega zdravljenja s presaditvijo ter vzpostavi transparenten in varen sistem darovanja organov in tkiv z upoštevanjem etičnih principov. V Sloveniji je bila nacionalna transplantacijska mreža ustanovljena leta 1998, a žal nekateri bolniki zaradi tkivne neskladnosti v Sloveniji ustreznega organa in zdravljenja niso dočakali. S članstvom v ET pa smo uspeli zagotoviti veliko boljšo dostopnost in izide zdravljenja s presaditvijo za naše bolnike, predvsem v visoko urgentnih, visoko senzibiliziranih in življenjsko ogrožajočih stanjih, kot sta akutna odpoved delovanja srca, jeter in pljuč. Sodelovanje v mednarodni mreži je namreč omogočilo optimalnejšo tkivno skladnost med darovalci in prejemniki ledvic (v obdobju pred ET, med 1970 do 1998, je bila tkivna skladnost HLA dosežena le v 20-35 %).

S članstvom v ET smo v Sloveniji pridobili priložnost za občutno izboljšanje nacionalnega donorskega programa. Optimizirali smo prejemniške programe za zdravljenje s presaditvijo src, ledvic in jeter ter začeli izvajati kombinirane presaditve. Zgovoren je podatek, da je bilo po priključitvi število presaditev od umrlih darovalcev za 2,8 krat višje, presaditve od živih darovalcev pa so izvajali le še sporadično. Število umrlih darovalcev se je občutno povečalo, zagotovili smo tudi manjše izgube oz. možnost, da se v večji množici ljudi za vsak pridobljen organ poišče medicinsko ustreznega in skladnega prejemnika (decembra 2020 je bilo na skupnem čakalnem seznamu za presaditev organa 14.090 bolnikov).

Poleg bolnikov smo številne prednosti pridobili tudi izvajalci dejavnosti, saj nenehna izmenjava znanja in izkušenj med državami članicami prispeva k razvoju dejavnosti na nacionalni in mednarodni ravni. Sodelovanje je navsezadnje tudi imenitna priložnost za uveljavljanje in prilagajanje standardom velikih držav s tradicijo urejenosti in velikim potencialom za napredek. Strokovne odločitve in usmeritve ET nastajajo v procesu soodločanja s strokovnjaki vseh držav članic in preverjanju skladnosti s posameznimi nacionalnimi zakonodajami. Poleg strokovnjakov iz UKC Ljubljana to nalogo že vsa leta opravlja zavod Slovenija-transplant, ki je pooblaščena nacionalna organizacija za koordinacijo donorske medicine, zagotavljanje kakovosti, varnosti in skladnosti vseh postopkov z najnovejšimi dosežki v medicini, zakonodajo in etičnimi vidiki.

Pomembno 20-letnico sodelovanja in uveljavljene prisotnosti v srednjeevropskem prostoru smo obeležili s slavnostnim dogodkom, ki je (še v živo) potekal 17. januarja 2020 v UKC Ljubljana. Na odlično obiskanem simpoziju smo prikazali povezanost, visoko strokovnost, entuziazem, kompleksnost in uspehe v donorski in transplantacijski dejavnosti pri nas. Predavatelji so predstavili celotno verigo postopkov, od ocenjevanja darovalcev, ugotavljanja tkivne skladnosti, organiziranosti in kakovosti donorskega programa, izobraževanja zdravstvenega osebja, informiranja javnosti, do uspehov in inovativnih tehnik v izvajanju posameznih programov presaditve organov. Posebej navdušujoči so rezultati in uspehi v programu presaditve pljuč, src in ledvic.

Dogodek je bil navsezadnje priložnost za praznovanje skladnosti v delovanju v nacionalni donorski mreži med Slovenija-transplantom, UKC Ljubljana in vsemi donorskimi bolnišnicami po Sloveniji. Le s skupnim in celovitim pristopom lahko tudi v prihodnje zagotavljamo kakovostno in varno zdravljenje s presaditvijo.

Ključne številke leta 2020

UMRLI DAROVALCI **47**

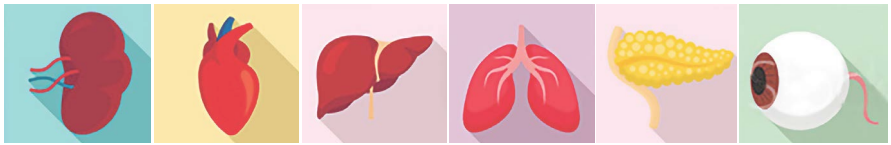
V LETU 2020 PO STAROSTNIH SKUPINAH

0<18 LET	18-59 LET	+60 LET
0	23	24

Povprečna starost je bila 59 let.

DAROVALCI SO PODARILI 136 ORGANOV

2020

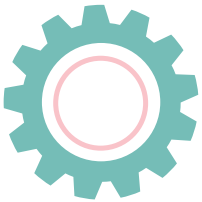


LEDVICE	SRCE	JETRA	PLJUČA	T. SLINAVKA	ROŽENICE
68	17	34	13	4	92

NACIONALNI REGISTER OPREDELJENIH OSEB GLEDE POSMRTNEGA DAROVANJA ORGANOV IN TKIV

Slovenija se uvršča med najuspešnejše države glede stopnje soglasja za darovanje.

752
(6 proti)
2020

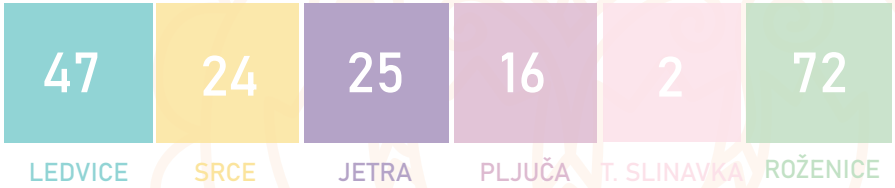


Opredeljenih 10.618 ljudi
od tega 10.598 ZA,
20 PROTI.

V CENTRU ZA TRANSPLANTACIJSKO DEJAVNOST V UKC LJUBLJANA SO PRESADILI 114 ORGANOV

204 pacienti so bili na čakalnem seznamu za presaditev
(stanje na dan 31. 12. 2020)

2020



PRIVOLITEV SVOJCEV ZA DAROVANJE ORGANOV IN TKIV

STOPNJA PRIVOLITVE: **76 %**

Transplantacijski koordinatorji so izvedli 70 POJASNILNIH POGOVOROV s svojci umrlih.

POVPREČNE ČAKALNE DOBE (v dnevih)

Čvrsti organi

NACIONALNI ČAKALNI SEZNAM ZA PRESADITVE ORGANOV

Čakalni seznam je seznam bolnikov, ki čakajo na del človeškega telesa za presaditev z namenom zdravljenja. Indikacije za presaditev so za vsak organ/tkivo/celico specifične. Vsi bolniki v Republiki Sloveniji imajo enake možnosti za uvrstitev na čakalni seznam prejemnikov in zagotovljen enak dostop do presaditve delov človeškega telesa. Konec leta 2020 so na presaditev čakali 204 bolniki. Število čakajočih se je v primerjavi z letom 2019 zmanjšalo, predvsem zaradi epidemiološke situacije s covid-19, ko so zdravniki obravnavali manj potencialnih kandidatov za uvrstitev na čakalni seznam, zlasti za presaditev ledvice. Povprečna čakalna doba je za vse organe v primerjavi z ostalimi državami relativno kratka. Slovenski bolniki čakajo na presaditev srca, jeter ali ledvice v povprečju manj kot leto dni. Za točnejše podatke o povprečnih čakalnih dobah za posamezen organ glej poglavje *Rezultati slovenskih programov za presaditve organov.*

V letu 2020 je bilo v Sloveniji na čakalni seznam na novo uvrščenih 93 bolnikov, od tega 27 za ledvico, 29 za srce, 8 za pljuča, 28 za jetra in 1 za ledvico v kombinaciji s trebušno slinavko.

Stanje na nacionalnem čakalnem seznamu na dan 31. 12. 2020 (vsi čakajoči)

Ledvica	Srce	Pljuča	Jetra*	Trebušna slinavka**
115	53	5	32	4
SKUPAJ				204 bolniki

*Od tega 2 skupaj z ledvico **Od tega 3 skupaj z ledvico

Vir: http://statistics.eurotransplant.org/

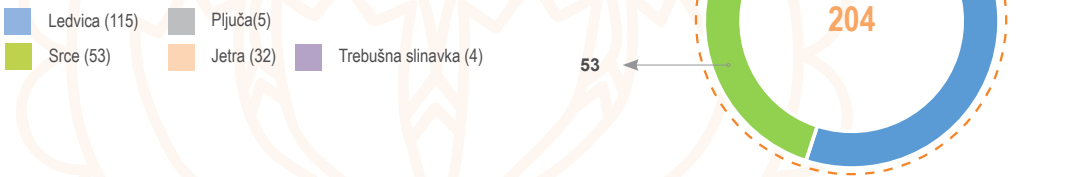
Nacionalni čakalni seznam v obdobju 2011–2020 (stanje na dan 31. 12., vsi čakajoči)

Leto	Ledvica	Srce	Pljuča*	Jetra	Trebušna slinavka	SKUPAJ
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	5	32	4	204

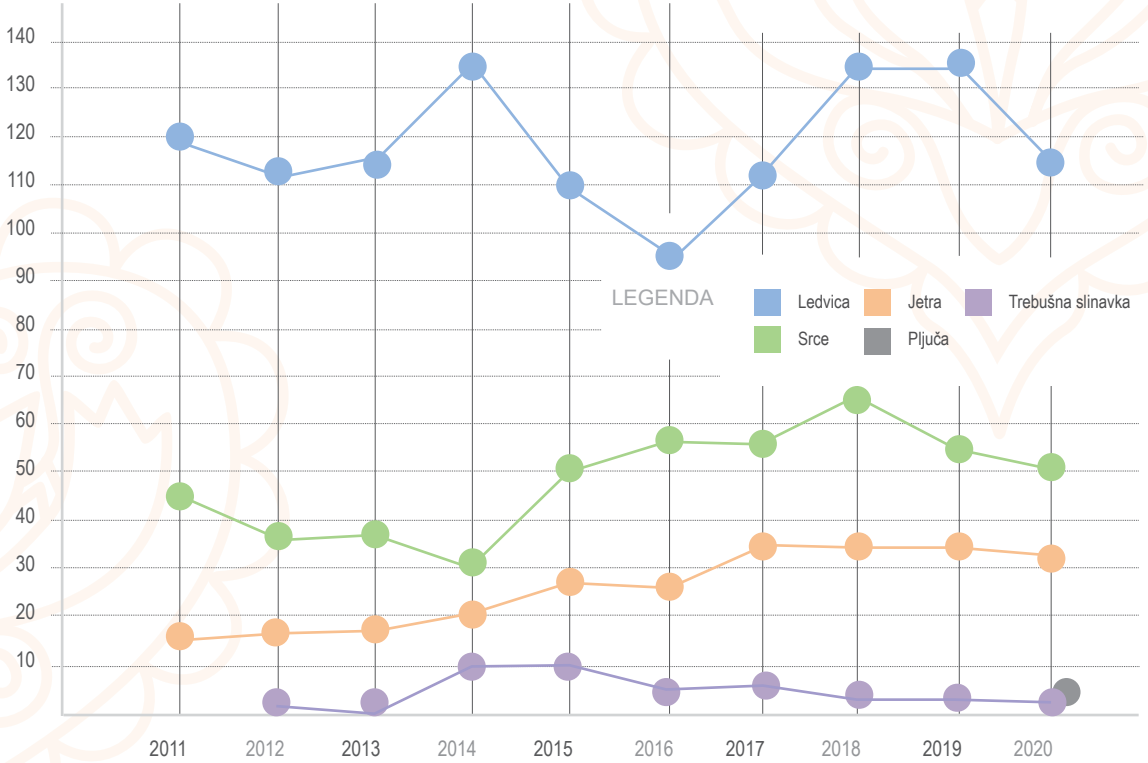
*Do leta 2020 so bili slovenski pacienti, ki so čakali na presaditev pljuč, uvrščeni na avstrijski čakalni seznami.

Vir: http://statistics.eurotransplant.org/

Delež bolnikov na nacionalnem čakalnem seznamu po posameznem organu v letu 2020



Gibanje števila bolnikov na čakalni listi po organih in skupaj 2011–2020

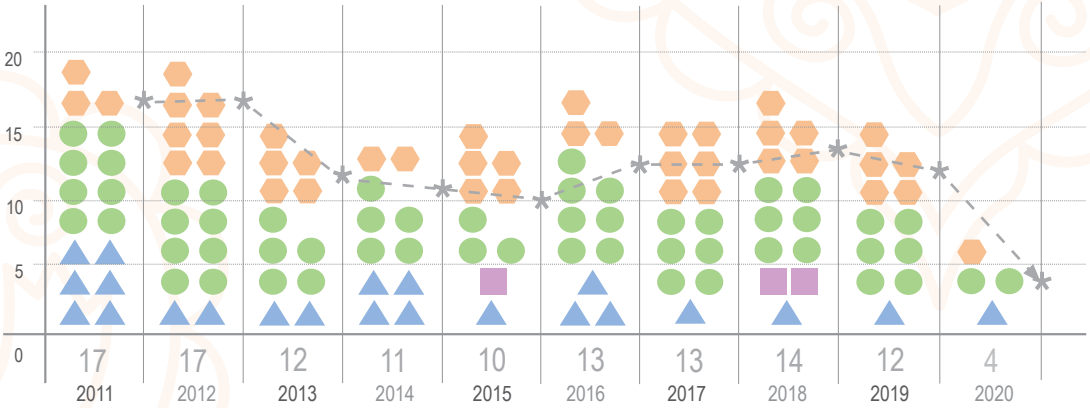


Število bolnikov, umrlih med čakanjem na presaditev organa 2011-2020

Leto	Ledvica	Ledvica skupaj s trebušno slinavko	Srce	Pljuča	Jetra	SKUPAJ
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

Vir: http://statistics.eurotransplant.org/

**Gibanje števila bolnikov,
umrlih med čakanjem na presaditev organa 2011-2020**



Vir: http://statistics.eurotransplant.org/

LEGENDA

Ledvica
Jetra
Ledvica in trebušna slinavka
Srce
Gibanje števila bolnikov

ŠTEVILO UMRLIH DAROVALCEV

V letu 2020 smo v slovenskih donorskih bolnišnicah pridobili 47 aktivnih umrlih darovalcev, ki so bili medicinsko ustrezni in za katere smo pridobili privolitev svojcev. Uvodoma so prikazani podatki o številu aktivnih umrlih darovalcev v Sloveniji v primerjavi z ostalimi državami sveta. V nadaljevanju so prikazani podatki o številu dejanskih umrlih darovalcev, kar pomeni, da je bil od vsakega darovalca presajen vsaj en organ. V primerjavi z ostalimi državami članicami Eurotransplanta se Slovenija po številu dejanskih umrlih darovalcev na milijon prebivalcev v letu 2020 ponovno, kot že nekaj let zapored, uvršča na četrto mesto.

Število aktivnih umrlih darovalcev (MD) na milijon prebivalcev (NMP) v Sloveniji v letu 2020 v primerjavi z ostalimi državami sveta

Država	Število MD/NMP 2020
1. ZDA	38,35
2. Španija	37,4
3. Portugalska*	33,8
4. Češka	27,14
5. Belorusija*	26,2
6. Malta*	25
7. Združeno kraljestvo*	24,88
8. Estonija	24,83
9. Avstrija	23,9
10. Hrvaška	23,7

Država	Število MD/NMP 2020
11. Francija**	22,4
12. Slovenija	22,25
13. Finska**	21,9
14. *Kanada**	21,87
15. Belgija**	21,12
16. Italija**	20,5
17. Danska**	20,4
18. Urugvaj	19,2
19. Norveška**	18,8
20. Avstralija**	18,53

Država	Število MD/NMP 2020
21. Švica*	18,4
22. Slovaška*	17,96
23. Litva	17,5
24. Švedska**	16,8
25. Nizozemska**	16,67
26. Brazilija**	15,5
27. Nova Zelandija*	15
28. Iran*	14,34
29. Irska	12,8
30. Kuba*	12

*Podatki za leto 2019 ** Število dejanskih darovalcev

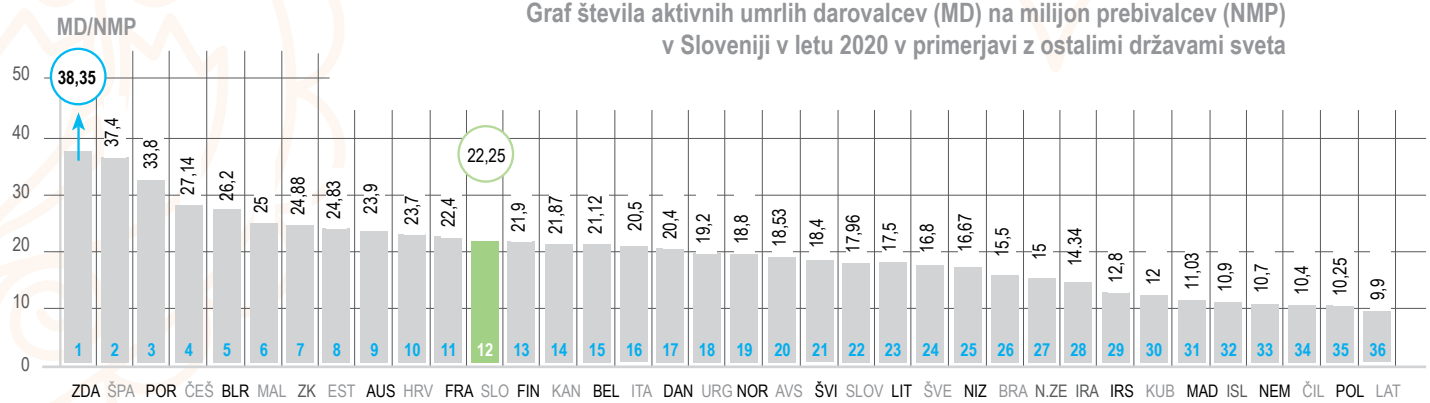
Država	Število MD/NMP 2020
31. Madžarska**	11,3
32. Islandija**	10,9
33. Nemčija**	10,77
34. Čile*	10,4
35. Poljska	10,27
36. Latvija*	9,9
37. Argentina	9,78

Država	Število MD/NMP 2020
38. Izrael	9,2
39. Južna koreja*	8,68
40. Kolumbija*	8,4
41. Ekvador*	7,78
42. Turčija*	7,54
43. Ciper*	6,86
44. Kostarika*	6,66

Država	Število MD/NMP 2020
45. Grčija*	5,5
46. Rusija*	5,14
47. Luksemburg**	5
48. Mehika*	4,45
49. Romunija*	4,39
50. Panama*	4,29
51. Kitajska*	4,16

*Podatki za leto 2019 ** Število dejanskih darovalcev

Graf števila aktivnih umrlih darovalcev (MD) na milijon prebivalcev (NMP) v Sloveniji v letu 2020 v primerjavi z ostalimi državami sveta



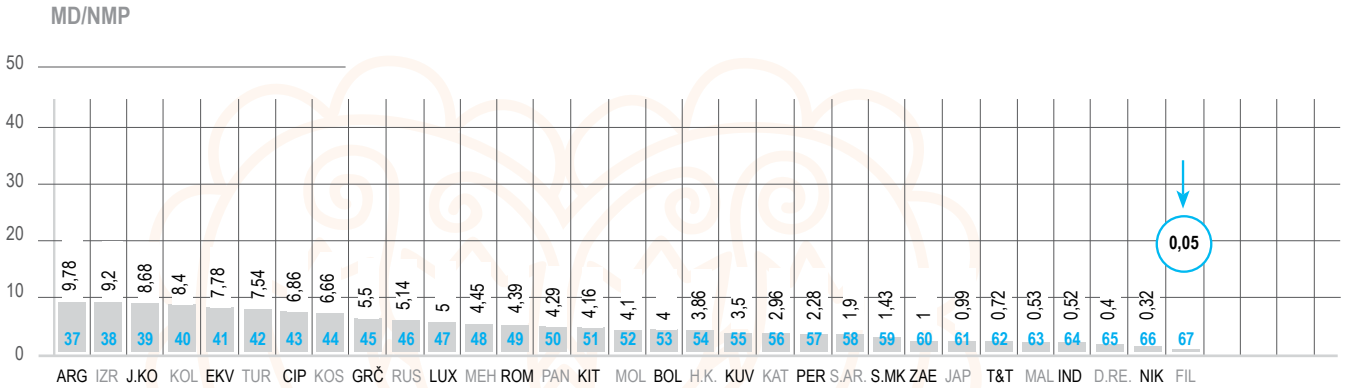
Država	Število MD/NMP 2020
52. Moldavija*	4,1
53. Bolgarija	4
54. Hong Kong*	3,86
55. Kuvajt	3,5
56. Katar*	2,96
57. Peru*	2,28
58. Saudijska Arabija	1,9

Država	Število MD/NMP 2020
59. Severna Makedonija*	1,43
60. ZAE*	1
61. Japonska*	0,99
62. Trinidad in Tobago*	0,72
63. Malezija*	0,53
64. Indija*	0,52
65. Dominikanska repub.	0,4

Država	Število MD/NMP 2020
66. Nikaragua*	0,32
67. Filipini	0,05

*Podatki za leto 2019 ** Število dejanskih darovalcev

Vir: Preliminary numbers 2020
IRODaT (International Registry in Organ Donation and Transplantation), www.irodat.org,

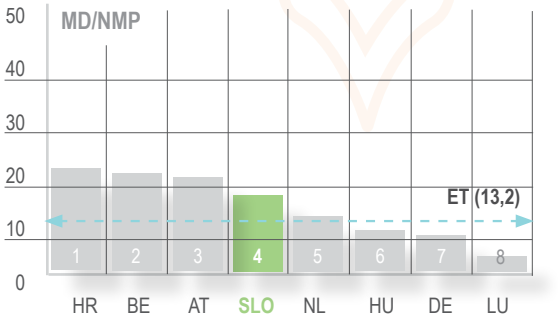


Število dejanskih umrlih darovalcev (MD) na milijon prebivalcev (NMP) v Sloveniji v letu 2020 in v primerjavi z državami Eurotransplanta.

Država	Slovenija (SLO)	Eurotransplant (ET)
Število MD	39	1.837
MD/NMP	18,5	13,2

Število dejanskih umrlih darovalcev na milijon prebivalcev (MD/NMP) ter primerjava z državami članicami Eurotransplanta v letu 2020

Država ET	Število MD/NMP 2020
1. Hrvaška (HR)	23,9
2. Belgija (BE)	21,2
3. Avstrija (AT)	21,1
4. Slovenija (SLO)	18,5
5. Nizozemska (NL)	14,4
6. Madžarska (HU)	11,0
7. Nemčija (DE)	10,7
8. Luksemburg (LU)	4,8



Vir: http://statistics.eurotransplant.org/

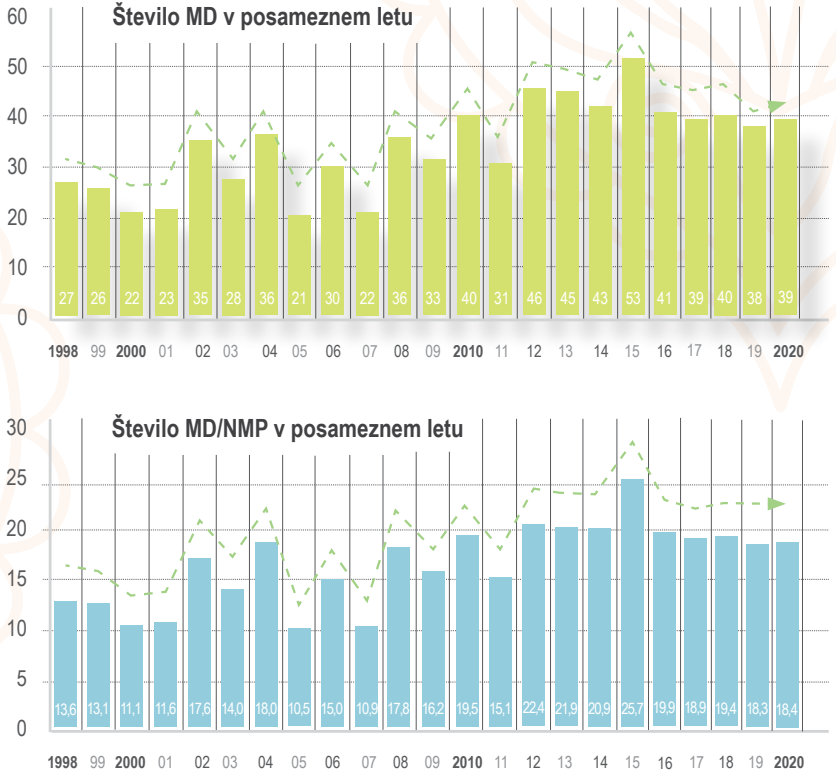
Število dejanskih umrlih darovalcev (MD) ter število umrlih darovalcev na milijon prebivalcev (MD/NMP) Sloveniji v letih od 1998 do 2020

Leto	Število MD	Število MD/NMP
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

Leto	Število MD	Število MD/NMP
2011	31	15,1
2012	46	22,4
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
SKUPAJ	794	17,0

Vir: http://statistics.eurotransplant.org/

Število dejanskih umrlih darovalcev (MD) in število dejanskih umrlih darovalcev na milijon prebivalcev (MD/NMP) v Sloveniji v letih od 1998 do 2020



Klasifikacija umrlih darovalcev organov

<table>
<tr><th colspan="3">MOREBITEN UMRLI DAROVALEC ORGANOV
Bolnik s hudo poškodbo možganov ALI bolnik z zaustavitvijo krvnega obtoka IN očitno medicinsko primeren za darovanje organov</th></tr>
<tr><th>Darovanje po smrti zaradi zaustavitve krvnega obtoka (DSK)</th><th>Lečeči zdravnik prepozna/opozori na možnega darovalca</th><th>Darovanje po možganski smrti (DMS)</th></tr>
<tr><td>MOŽEN DAROVALEC (DSK)

a. Oseba, pri kateri se je zaustavilo delovanje krvnega obtoka in dihanje, postopki oživljanja se ne uporabijo oz. se ne nadaljujejo. ALI
b. Oseba, pri kateri je mogoče predvideti, da se bo v določenem časovnem okviru zaustavilo delovanje krvnega obtoka in dihanje, kar bo omogočilo pridobitev organov.</td><td rowspan="4">Razlogi, zakaj možen darovalec ne postane dejanski darovalec

SISTEM DELA
- Zdravstveno osebje ni prepoznalo /opozorilo na možnega mrtvega darovalca ali primernega darovalca,
- Možganska smrt ni potrjena (npr. ne izpolnjuje meril) oz. postopek ugotavljanja MS ni zaključen (npr. ker ni na voljo ustreznih diagnostičnih naprav oz. osebja, ki bi opravilo potrditveni test),
- Smrt zaradi zaustavitve krvnega obtoka ni pravočasno potrjena,
- Logistične težave (npr. ekipa za odvzem organov ni na voljo),
- Ni ustreznega prejemnika (npr. pri otroku, krvna skupina, pozitivna serologija).

DAROVALEC/ORGAN
- Medicinsko neustrezen (npr. pozitivna serologija, tumor),
- Hemodinamska nestabilnost /nepredvidena zaustavitev srca,
- Anatomske, histološke in/ali funkcionalne nepravilnosti organov,
- Organi poškodovani med postopkom pridobivanja,
- Nezadostna perfuzija organov ali krvni strdek.

PRIVOLITEV
- Umrli je za časa življenja izrazil voljo, da ne želi biti darovalec,
- Zavrnitev svojcev umrlega,
- Zavrnitev mrliškega oglednika ali preiskovalnega sodnika zaradi forenzičnih razlogov.</td><td>MOŽEN DAROVALEC (DMS)

Oseba, katere klinično stanje kaže na verjetnost, da izpolnjuje merila za možgansko smrt.</td></tr>
<tr><td>PRIMEREN DAROVALEC (DSK)

Medicinsko ustrezna oseba, pri kateri je bila ugotovljena smrt na podlagi nepovratne prekinitve delovanja krvnega obtoka in dihanja, glede na relevantno zakonodajo, v časovnem okviru, ki omogoča pridobitev organov.</td><td>PRIMEREN DAROVALEC (DMS)

Medicinsko ustrezna oseba, pri kateri je bila ugotovljena smrt na podlagi nevroloških meril, glede na relevantno zakonodajo.</td></tr>
<tr><td>AKTIVEN DAROVALEC (DSK)

Primeren darovalec, za katerega imamo privolitev
a. Narejen je bil operacijski rez z namenom pridobitve organov za namen presaditve. ALI
b. Pridobljen je bil vsaj en organ za namen presaditve.</td><td>AKTIVEN DAROVALEC (DMS)

Primeren darovalec,
za katerega imamo privolitev
a. Narejen je bil operacijski rez z namenom pridobitve organov za namen presaditve. ALI
b. Pridobljen je bil vsaj en organ za namen presaditve.</td></tr>
<tr><td>DEJANSKI DAROVALEC (DSK)

Aktiven darovalec, od katerega je bil presajen vsaj en organ.</td><td>DEJANSKI DAROVALEC (DMS)

Aktiven darovalec, od katerega je bil presajen vsaj en organ.</td></tr>
<tr><td colspan="3">Upoštevati je potrebno »pravilo umrlega darovalca«. Bolnik lahko postane darovalec šele po smrti, pridobitev organov ne sme povzročiti smrti darovalca.</td></tr>
</table>

Povzeto po Madridski resoluciji o darovanju organov in transplantaciji

REGISTER OPREDELJENIH OSEB GLEDE DAROVANJA ORGANOV IN TKIV PO SMRTI

Vsak slovenski državljan ima v času življenja pravico in možnost, da se opredeli glede darovanja organov in tkiv. Odločitev formalno potrdimo z vpisom v nacionalni register opredeljenih oseb, ki je bil vzpostavljen leta 2004. Izjavo o opredelitvi glede darovanja lahko podpišemo osebno na številnih pooblaščenih mestih v več krajih po Sloveniji (natančen seznam je objavljen na *www.slovenija-transplant.si)* ali elektronsko z digitalnim podpisom preko portala eUprava (*https://e-uprava.gov.si/*). Od junija 2017 je poleg opredelitve ZA darovanje mogoča tudi opredelitev PROTI darovanju.

V letu 2020 se je v nacionalni register opredeljenih oseb glede posmrtnega darovanja zaradi epidemije covid-19 kljub možnosti opredelitve po elektronski poti, vpisalo 40 % manj oseb kot prejšnja leta. Zbrali smo 752 opredelitev (746 ZA in 6 PROTI). V nacionalnem registru opredeljenih oseb glede darovanja organov po smrti je bilo 31. 12. 2020 skupaj vpisanih 10.618 oseb (od tega 10.598 za in 20 proti). Elektronski način vpisa je od vzpostavitve tega načina v novembru 2018 uporabilo 1785 oseb. Letno se na ta način opredeli okoli 40 % vseh opredeljenih, v letu 2020 pa je zaradi zmanjšane dostopnosti pooblaščenih mest za osebno opredelitev to možnost uporabilo 61 % vseh opredeljenih.

Število vpisanih v registru opredeljenih oseb glede darovanja organov in tkiv po letih v obdobju od 2004 do 2020

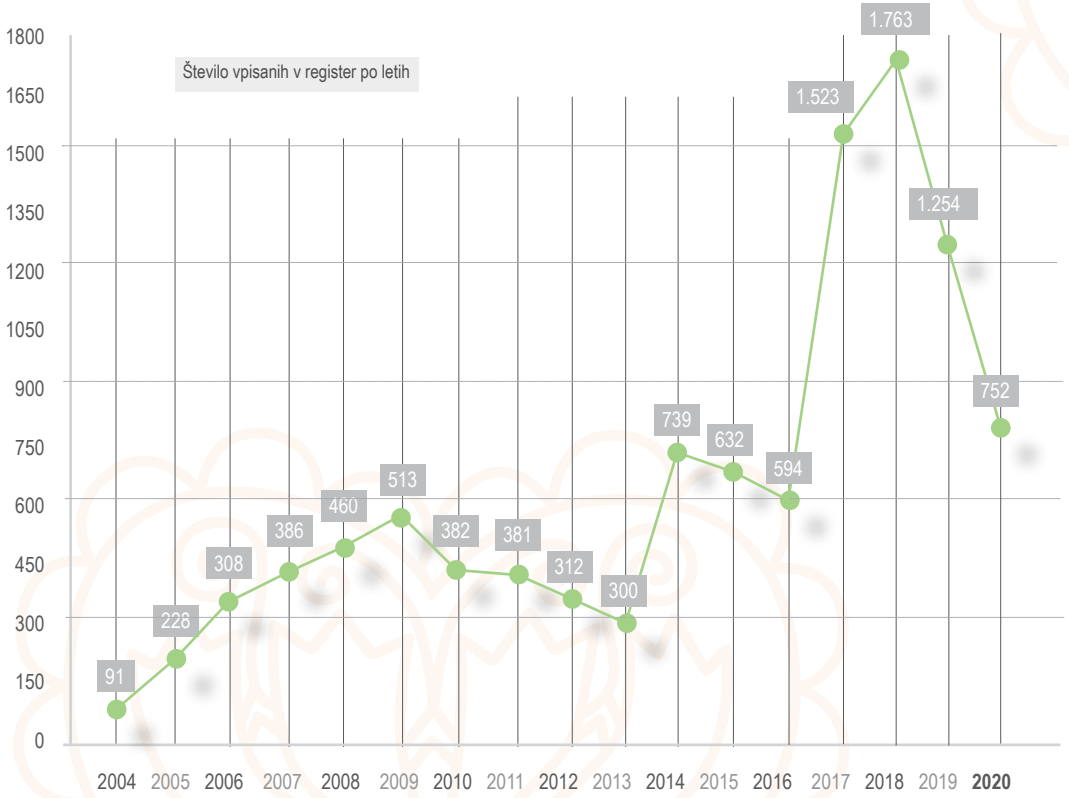
Vir: arhiv Slovenija-transplanta

Leto	Št. vpisanih
2004	91
2005	228
2006	308
2007	386
2008	460
2009	513

Leto	Št. vpisanih
2010	382
2011	381
2012	312
2013	300
2014	739
2015	632

Leto	Št. vpisanih
2016	594
2017	1.523
2018	1.763
2019	1.254
2020	752
SKUPAJ	**10.618**

Število vpisanih v registru opredeljenih oseb glede darovanja organov in tkiv po letih v obdobju 2004–2020



ODSTOTKI PRIVOLITEV ZA DAROVANJE PRI POGOVORU S SVOJCI

Pogovor s svojci oz. bližnjimi osebami možnega mrtvega darovalca glede darovanja se opravi v vseh primerih, ko je možno izpeljati postopke za darovanje organov za presaditev in odvzem od umrle osebe. Transplantacijski koordinator šele po potrditvi smrti ter vpisu časa smrti preveri v registru, ali je bil umrli opredeljen kot darovalec po smrti. Kljub znani opredelitvi centralni koordinator za transplantacijo vedno opravi pogovor o darovanju s svojci umrlega. V pogovoru poskuša izvedeti, kakšno je bilo stališče umrlega glede posmrtnega darovanja in v primeru privolitve v nadaljevanju pogovora pridobi dodatne zdravstvene podatke, ki so pomembni za darovanje.

Če volja umrlega ni znana, se na koncu glede darovanja odločijo svojci. Vsi postopki so izvedeni z visoko stopnjo tankočutnosti, razumevanja izjemno težkih čustvenih okoliščin ter v skladu z zakonodajnimi določbami in medicinsko doktrino. V letu 2020 je darovanje odklonilo 24 % svojcev.

Ker je smrt bližnjega za vsakogar izmed nas težka izkušnja, Slovenija-transplant svojcem darovalcev nudi možnost posvetovanja ob žalovanju s strokovno usposobljenimi in izkušenimi strokovnjaki.

Odstotki privolitev za darovanje v obdobju od 1998 do 2020

Vir: arhiv Slovenija-transplanta

Leto	%
1998	79
1999	70
2000	63
2001	64

Leto	%
2002	78
2003	77
2004	70
2005	81

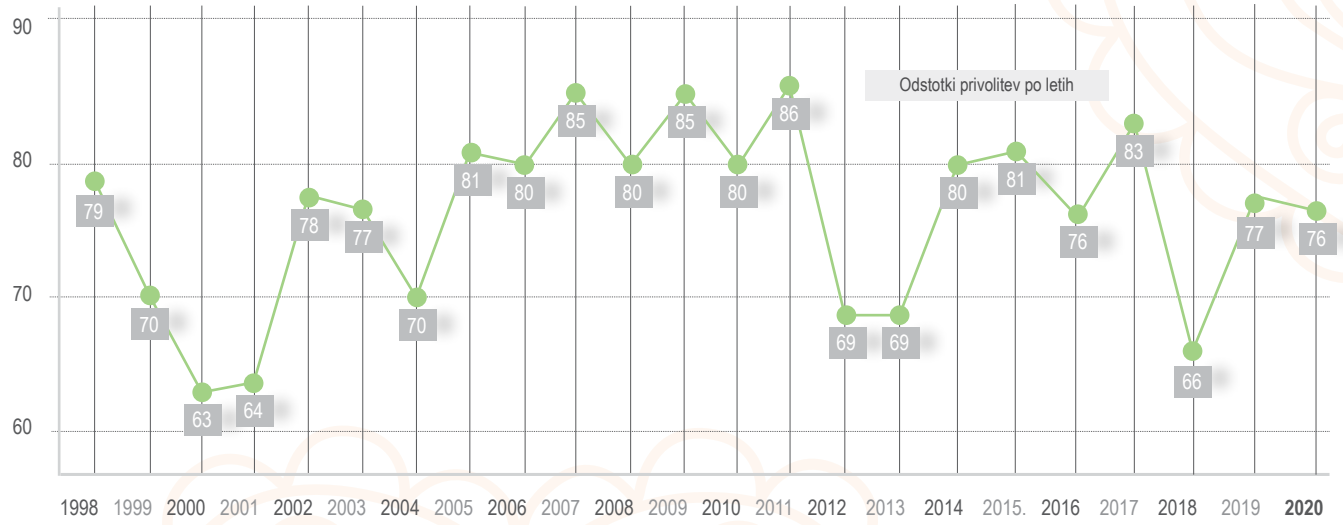
Leto	%
2006	80
2007	85
2008	80
2009	85

Leto	%
2010	80
2011	86
2012	69
2013	69

Leto	%
2014	80
2015	81
2016	76
2017	83

Leto	%
2018	66
2019	77
2020	76

Odstotki privolitev za darovanje v obdobju od 1998 do 2020



DELOVANJE DONORSKIH CENTROV

V slovenski donorski program je vključenih enajst donorskih bolnišnic oz. centrov: UKC Ljubljana in UKC Maribor ter splošne bolnišnice v Celju, Murski Soboti, Novi Gorici, Izoli, na Ptuju, v Novem mestu, Slovenj Gradcu, na Jesenicah in v Brežicah.

V donorskem centru izvajajo naslednje dejavnosti:

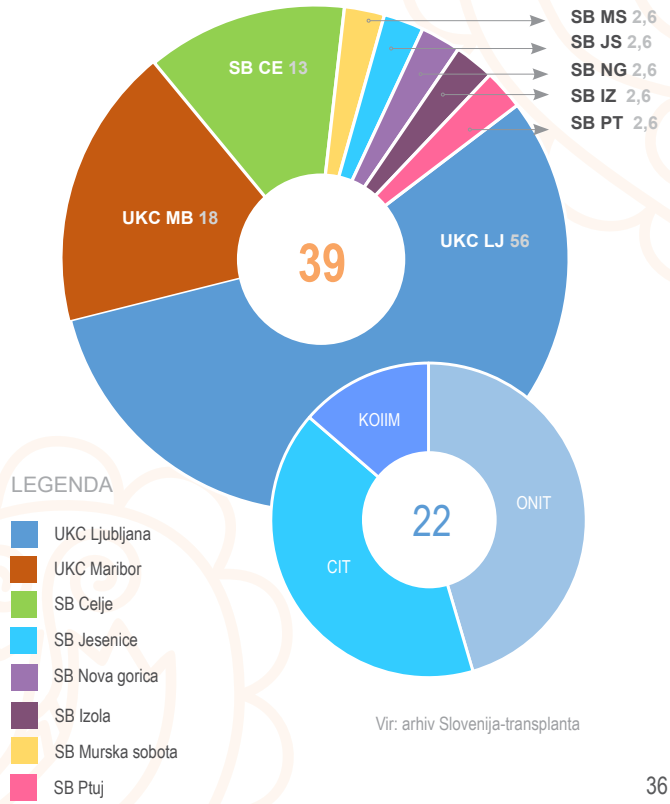
- odkrivajo možne mrtve darovalce,
- izvajajo diagnostiko možganske smrti,
- ugotavljajo primernost organov in tkiv za odvzem in presaditev,
- seznanjajo pokojnikove bližnje z možnostjo darovanja in pridobijo soglasje svojcev,
- ohranjajo delovanje organov mrtvih darovalcev – v intenzivni terapiji in med odvzemom organov,
- sodelujejo pri odvzemih organov in tkiv, ki jih izvajajo slovenske in tuje kirurške ekipe.

Največ darovalcev v Sloveniji pridobijo v UKC Ljubljana, kjer imajo največje število postelj v enotah intenzivne terapije in so v letu 2020 pridobili 22 dejanskih umrlih darovalcev. Rezultati so dobri tudi v UKC Maribor, kjer so v letu 2020 pridobili 7 dejanskih umrlih darovalcev in v SB Celje s 5 pridobljenimi dejanskimi umrlimi darovalci. Po enega darovalca so pridobili še v SB Izola, SB Nova Gorica, SB Murska Sobota, SB Jesenice in v SB Ptuj.

Število in delež dejanskih umrlih darovalcev v posameznih donorskih centrih (DC) v letu 2020

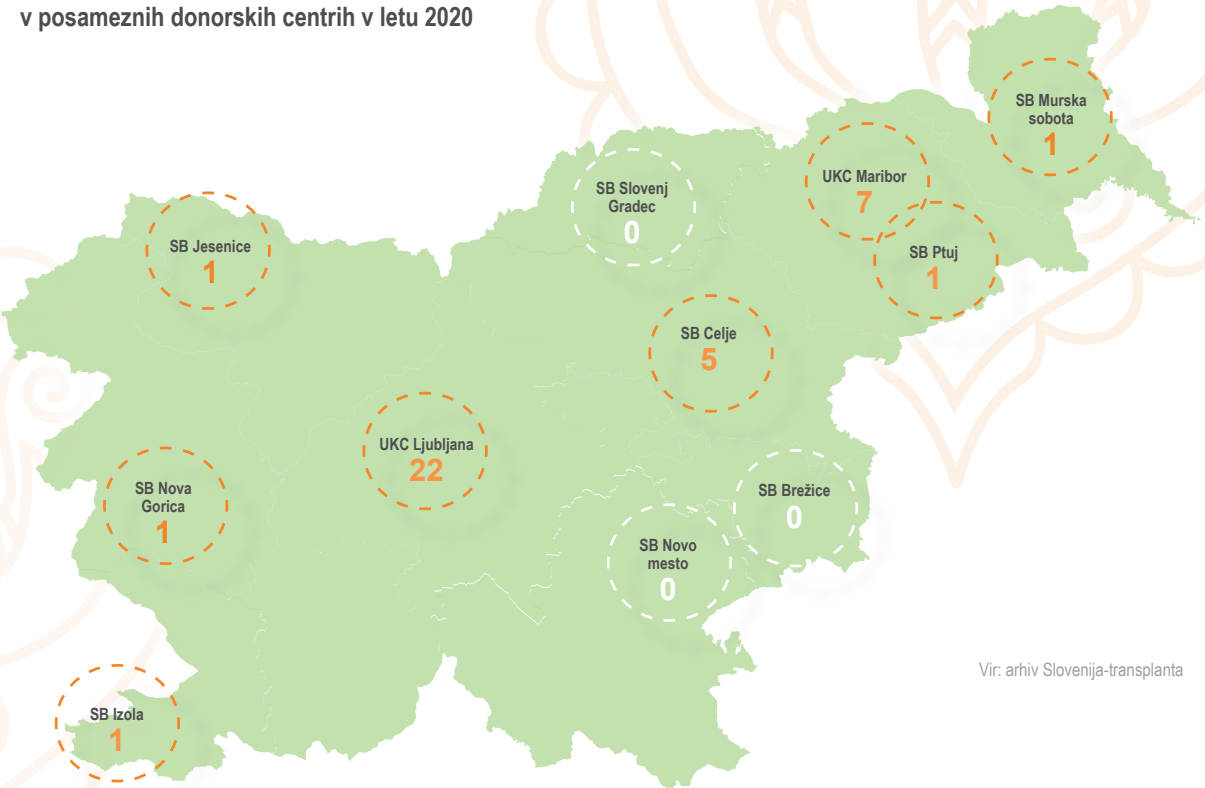
Donorski center	Število MD	Delež v %
UKC Ljubljana skupaj	22	56
Od tega ONIT*	10	
Od tega CIT**	9	
Od tega KOIIM***	3	
UKC Maribor	7	18
SB Celje	5	13
SB Jesenice	1	2,6
SB Nova Gorica	1	2,6
SB Izola	1	2,6
SB Murska Sobota	1	2,6
SB Ptuj	1	2,6
SKUPAJ	39	100

* ONIT – oddelek nevrološke intenzivne terapije,
** CIT – centralna intenzivna terapija,
*** KOIIM – klinični oddelek interne intenzivne medicine.



Vir: arhiv Slovenija-transplanta

Število dejanskih umrlih darovalcev v posameznih donorskih centrih v letu 2020



Vir: arhiv Slovenija-transplanta

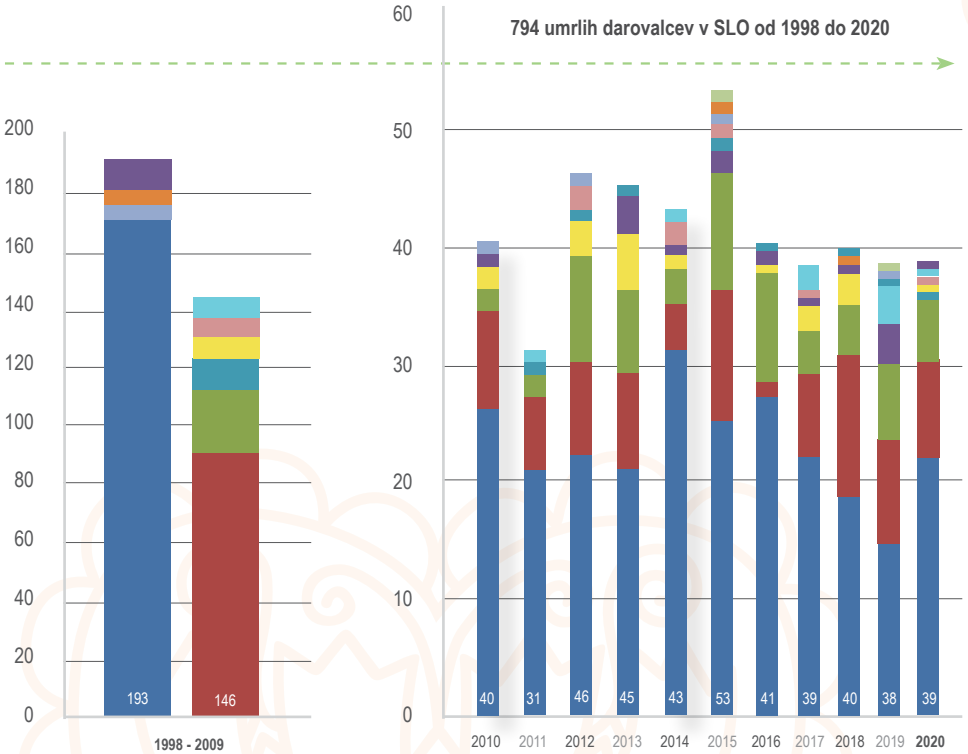
SLAVNOSTNI SIMPOZIJ OB 20. OBLETNICI USPEŠNEGA SODELOVANJA Z EUROTRANSPLANTOM,
UKC LJUBLJANA, JANUAR 2020
FOTO: ANDREJ ZORE

Število dejanskih umrlih darovalcev po donorskih centrih od 1998 do 2020

Vir: arhiv Slovenija-transplanta

Leto	UKC LJ	UKC MB	SB CE	SB MS	SB NG	SB Izola	SB Ptuj	SB JE	SB NM	SB SG	SB Brežice
1998-2009	176	95	22	7	10	9	7	6	3	4	
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			
2015	25	11	10		2	1	1		1	1	1
2016	28	2	7	1	2	1					
2017	22	7	4	2	1		1	2			
2018	18	13	4	2	1	1				1	
2019	15	8	6		3	1		3	1		1
2020	22	7	5	1	1	1	1	1			
SKUPAJ	**427**	**177**	**81**	**24**	**25**	**17**	**14**	**14**	**7**	**6**	**2**

Število dejanskih umrlih darovalcev po donorskih centrih od 1998 do 2020



Potencial in realizacija v donorskih bolnišnicah (zaključena analiza za leto 2020)

Potencial za darovanje za posamezno donorsko bolnišnico se izraža kot odstotek možgansko umrlih od vseh umrlih na oddelku za intenzivno zdravljenje (OIZ). Pove nam, pri koliko umrlih je bila do konca izpeljana diagnostika možganske smrti. Potencial je v neposredni povezavi z odkrivanjem primernih darovalcev na OIZ.

Realizacija v procesu darovanja nam pove, koliko primernih darovalcev (dokazana možganska smrt) je postalo aktivnih darovalcev. Izraža se kot odstotek aktivnih darovalcev od vseh dokazanih možgansko umrlih na OIZ.

Vir: arhiv Slovenija-transplanta

Donorska bolnišnica	Vse smrti v OIZ	MD	PD	*Potencial (%)	Dosegljivi (%)	AD	Realizacija (%)	**Dosegljiva (%)
UKC Ljubljana	407	61	45	11.1	13.7	24	53	65
UKC Maribor	236	25	11	4.7	13.7	7	64	65
SB Novo mesto	99	3	/	/	8.3	/	/	55
SB Celje	180	18	12	6.7	8.3	7	58	55
SB Nova Gorica	72	7	1	1.3	8.3	1	100	55
SB Ptuj	48	3	2	4.2	8.3	1	50	55
SB Murska Sobota	96	7	5	5.2	8.3	3	80	55
SB Izola	76	3	1	1.3	8.3	1	100	55
SB Slovenj gradec	78	/	/	/	8.3	/	/	55
SB Jesenice	48	2	2	4.2	8.3	2	100	55
SB Brežice	29	2	1	3.4	8.3	1	100	55

OIZ – oddelek za intenzivno zdravljenje, **MD** – možni darovalec, **PD** – primerni darovalec (dokazana možganska smrt), **AD** – aktivni darovalec (privolitev svojcev, odvzem organov), **Potencial** - % možgansko umrlih od vseh umrlih na OIZ = % PD/vse smrti na OIZ.
Realizacija - % aktivnih darovalcev od vsem možgansko umrlih = % AD/PD

*Potencial za donorsko bolnišnico je pričakovano višji za bolnišnice, ki imajo svojo nevrokirurško enoto in lahko dosežejo potencial tudi do 13,7 % (dosegljivi potencial). Dokaj blizu svojemu potencialu je bil UKC Ljubljana, medtem ko je UKC Maribor v letu 2020 za svojim potencialom precej zaostal. Vzrok za to je epidemija covid-19, ki je v letu 2020 izraziteje prizadela vse OIZ iz UKC Maribor. Za bolnišnice brez lastne nevrokirurške enote pa je dosegljivi potencial za darovanje do 8,3 %. Tej številki se je leta 2020 najbolj približala SB Celje, relativno blizu je bila še SB Murska Sobota. Večina donorskih bolnišnic je v letu 2020 zaostajala za dosegljivimi vrednostmi, kar kaže na to, da lahko še dodatno izboljšamo odkrivanje primernih darovalcev. So pa vse manjše bolnišnice močno čutile posledice epidemije, saj so se številni OIZ spremenili v oddelke intenzivnega zdravljenja bolnikov s covid-19.

**Realizacija je odvisna predvsem od odstotka absolutnih medicinskih kontraindikacij in zavrnitev darovanja s strani svojcev v obravnavanem časovnem obdobju. **Dosegljiva realizacija upošteva do 20 % absolutnih medicinskih kontraindikacij in do 10-odstotno stopnjo odklonitve darovanja s strani svojcev, loči tudi med donorsko bolnišnico z nevrokirurško enoto ali brez nje (razlika 10 %), ostale ovire v donorskem procesu pa skupno predstavljajo do 5 %. Tako je izračunana dosegljiva realizacija za bolnišnice z nevrokirurško enoto 65 %, za tiste brez nevrokirurške enote pa 55 %. V letu 2020 so dosegljivo realizacijo presegli v SB Murska Sobota in SB Celje, blizu je bil tudi UKC Maribor. Pri nizkih vrednostih potenciala zasledimo tudi odstopanja, kot npr. v SB Izola, SB Nova Gorica in SB Brežice, kjer so dosegli 100-odstotno realizacijo pri edinem primeru, pri čimer ni bilo medicinskih kontraindikacij za darovanje, prav tako pa so svojci v darovanje privolili. V takih primerih je verjetno dvoletna bilanca natančnejša in v skladu s pričakovanimi rezultati. Pri bolnišnicah, v katerih leta 2020 ni bilo dokazanih možganskih smrti in ni bilo aktivnih darovalcev, sta potencial in realizacija prav tako 0 % oziroma nemerljiva (/).

Seznam odgovornih oseb (t. i. bolnišničnih transplantacijskih koordinatorjev), ki skrbijo za razvoj, potek ter delovanje donorskega programa v posameznih donorskih centrih za leto 2020

Donorski center	Odgovorne osebe
UKC Ljubljana	prim. asist. mag. Rade Stanić, dr. med.
UKC Maribor	Tanja Kuprivec, dr. med.
SB Brežice	Nataša Pirc, dr. med.
SB Celje	Barbara Hudournik, dr. med.
SB Izola	Damjan Polh, dr. med.
SB Jesenice	Andraž Nastran, dr. med.
SB Murska Sobota	prim. Daniel Grabar, dr. med.
SB Nova gorica	Edyta Čerkini, dr. med.
SB Novo mesto	Matej Godnič, dr. med.
SB Ptuj	prim. Majda Šarman, dr. med. (do 29. 2.) / Mateja Prevolšek, dr. med. (od 1. 3. 2020)
SB Slovenj Gradec	Rok Popič, dr. med.

8. INTENZIVNI TEČAJ S PODROČJA PRIDOBIVANJA IN PRESADITVE ORGANOV TPM,
LOGARSKA DOLINA, JANUAR 2020
FOTO: JANA ŠIMENC

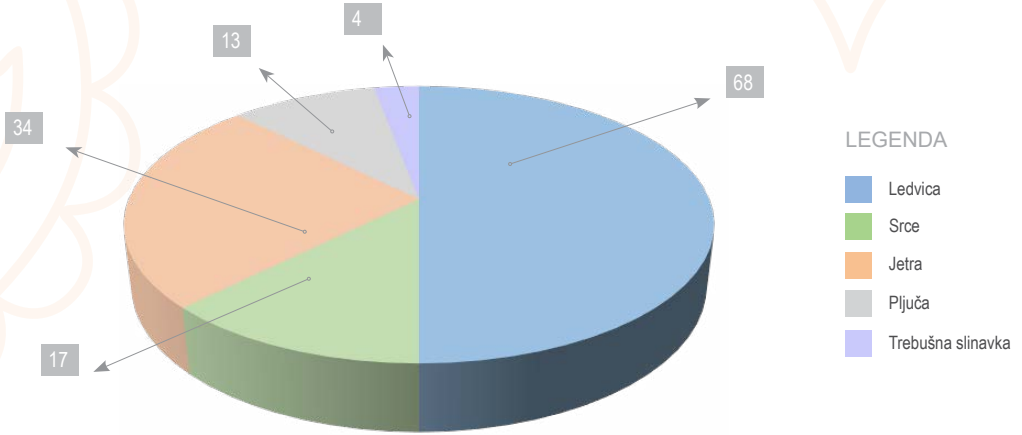
PRIDOBLJENI ČVRSTI ORGANI ZA NAMEN ZDRAVLJENJA

Število pridobljenih organov je odvisno od števila pridobljenih umrlih darovalcev, pa tudi od starosti in medicinskih kontraindikacij. V letu 2020 je bilo število pridobljenih organov umrlih darovalcev kljub epidemiji covid-19 višje od preteklega leta. V nadaljevanju so prikazani podatki za leto 2020 in primerjava s preteklimi leti.

Število pridobljenih organov slovenskih umrlih darovalcev v letu 2020

Ledvica	Srce	Jetra	Pljuča (obe pljučni krili)	Trebušna slinavka	SKUPAJ
68	17	34	13	4	136

Vir: arhiv Slovenija-transplanta



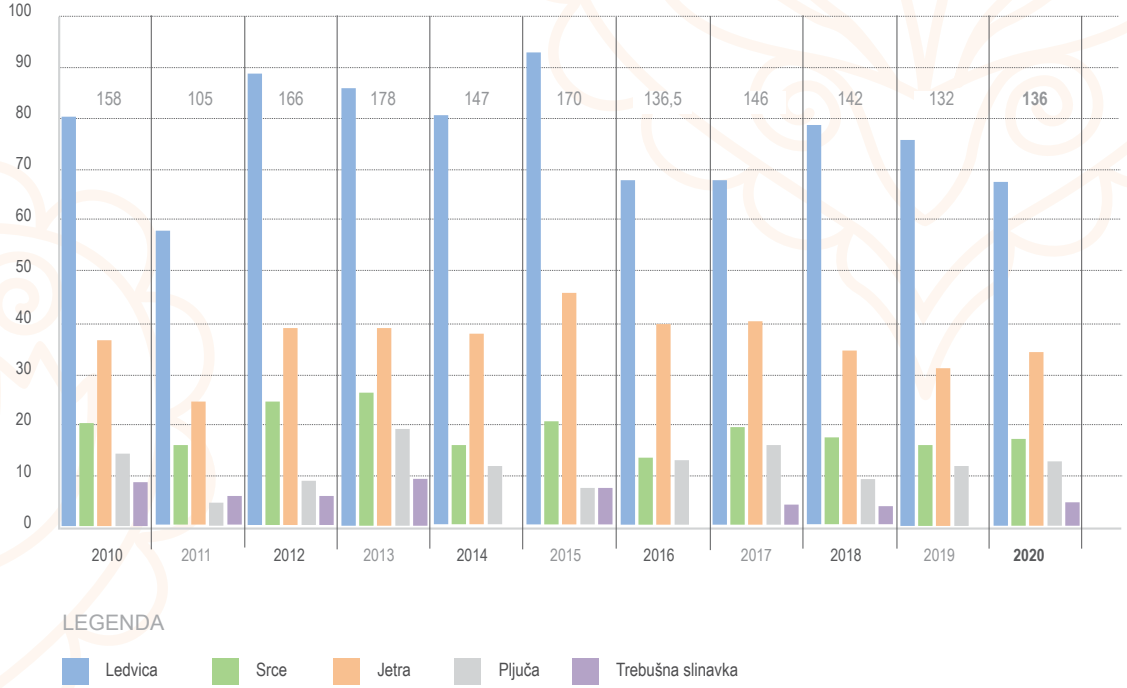
Pridobljeni organi slovenskih umrlih darovalcev od leta 2000 do 2020

Leto	Ledvica	Srce	Jetra	Pljuča (obe krili)	Trebušna slinavka	SKUPAJ
2000-2009	559	149	217	70,5	76	1.071,5
2010	80	20	37	13	8	158
2011	58	14	24	4	5	105
2012	89	25	39	8	5	166
2013	86	26	39	19	8	178
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	/	132
2020	68	17	34	13	4	136
SKUPAJ	1.402	351	618	193	123	2.687

Vir: arhiv Slovenija-transplanta

Pridobljeni organi slovenskih umrlih darovalcev od 2010 do 2020

1.615 pridobljenih organov umrlih darovalcev v SLO **od 2010 do 2020**



PRESAJENI ČVRSTI ORGANI

V Sloveniji imamo en transplantacijski center, to je Univerzitetni klinični center v Ljubljani, kjer se izvajajo programi za presaditve čvrstih organov. Sistem razporejanja organov zagotavlja enako dostopnost do terapije s presaditvijo organov vsem državljanom Slovenije.

Naloge transplantacijskega centra so:

- priprava prejemnikov za uvrstitev na čakalni seznam,
- presaditev organov,
- vodenje bolnikov po presaditvi.

Transplantacijski center od leta 2014 vodi kardiovaskularni kirurg dr. Ivan Kneževič, dr. med. V letu 2020 je bilo opravljenih 114 presaditev organov, 113 je bilo pridobljenih od umrlih darovalcev in en organ od živega darovalca. Največ je bilo presajenih ledvic, po številu vseh presajenih organov od umrlih darovalcev na milijon prebivalcev smo nekoliko nad povprečjem držav Eurotransplanta. Pomembno višje pa je število presaditev src na milijon prebivalcev, kjer smo zadnjih nekaj let v samem svetovnem vrhu.

Slovenski program za presaditev pljuč se je v letu 2020 je popolnoma osamosvojil in v UKC Ljubljana so opravili šestnajst presaditev pljuč za slovenske bolnike. Slovenski strokovnjaki so v letu 2020 opravili prvo presaditev pljuč pri pediatrični bolnici, eno presaditev pa so opravili pri bolniku, ki so mu pljuča dokončno odpovedala zaradi zapletov po covidu-19.

Pediatrične transplantacije delno opravljajo v UKC Ljubljana, delno pa v bližnjih evropskih transplantacijskih centrih (ledvice v LKH v Gradcu in Hannovru, jetra v Bergamu in Hamburgu). Za obravnavo in pripravo pred presaditvijo in zdravljenje ter sledenje bolnika po presaditvi organa poskrbijo na pristojnih oddelkih v UKC Ljubljana.

Presajeni čvrsti organi umrlih darovalcev v UKC Ljubljana v letu 2020 in primerjava z Eurotransplantom - absolutno število in število na milijon prebivalcev (NMP)

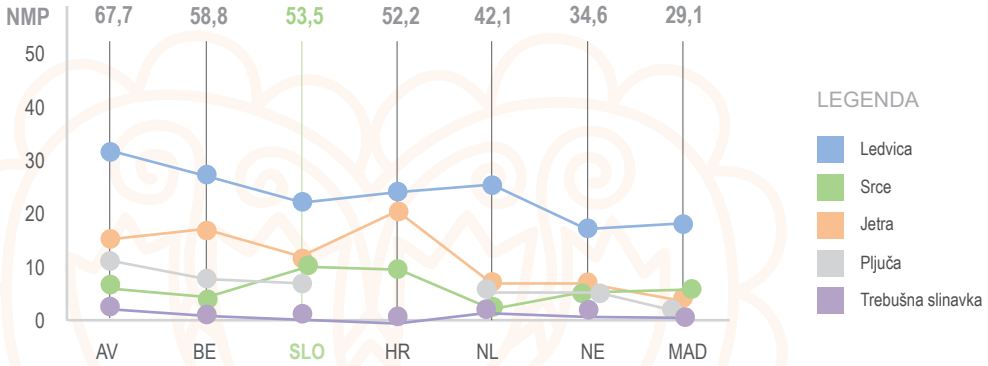
	Ledvica MD		Srce		Jetra		Pljuča		Trebušna slinavka		SKUPAJ	
	Št.	NMP	Št.	NMP	Št.	NMP	Št.	NMP	Št.	NMP	Št.	NMP
SLO	46	21,8	24	11,4	25	11,8	16	7,6	2	1	113	53,5
ET	2.851	20,6	587	4,3	1.470	10,7	1.279	4,8	154	1,2	6.356	40,1

Vir: arhiv Slovenija-transplanta in http://statistics.eurotransplant.org/

Število presajenih čvrstih organov umrlih darovalcev na milijon prebivalcev (NMP) v Sloveniji leta 2020 in primerjava z državami Eurotransplanta

Država ET	Ledvica	Jetra	Srce	Pljuča	Trebušna slinavka	Število presaditev/ NMP 2020
1. Avstrija (AV)	32,7	16,9	6,6	12,0	2,2	67,7
2. Belgija (BE)	28,2	18,5	4,7	8,1	1,2	58,8
3. Slovenija (SLO)	21,8	11,8	11,4	7,6	1,0	53,5
4. Hrvaška (HR)	23,4	23,2	6,2	/	0,2	52,2
5. Nizozemska (NL)	25,4	9,3	2,4	5,0	1,7	42,1
6. Nemčija (NE)	17,5	9,3	4,1	4,1	1,1	34,6
7. Madžarska (MAD)	17,6	5,1	4,6	1,7	0,6	29,1

Vir: arhiv Slovenija-transplanta in http://statistics.eurotransplant.org/



Število presajenih čvrstih organov umrlih darovalcev v Sloveniji oz. slovenskim prejemnikom od leta 1970 do 2020

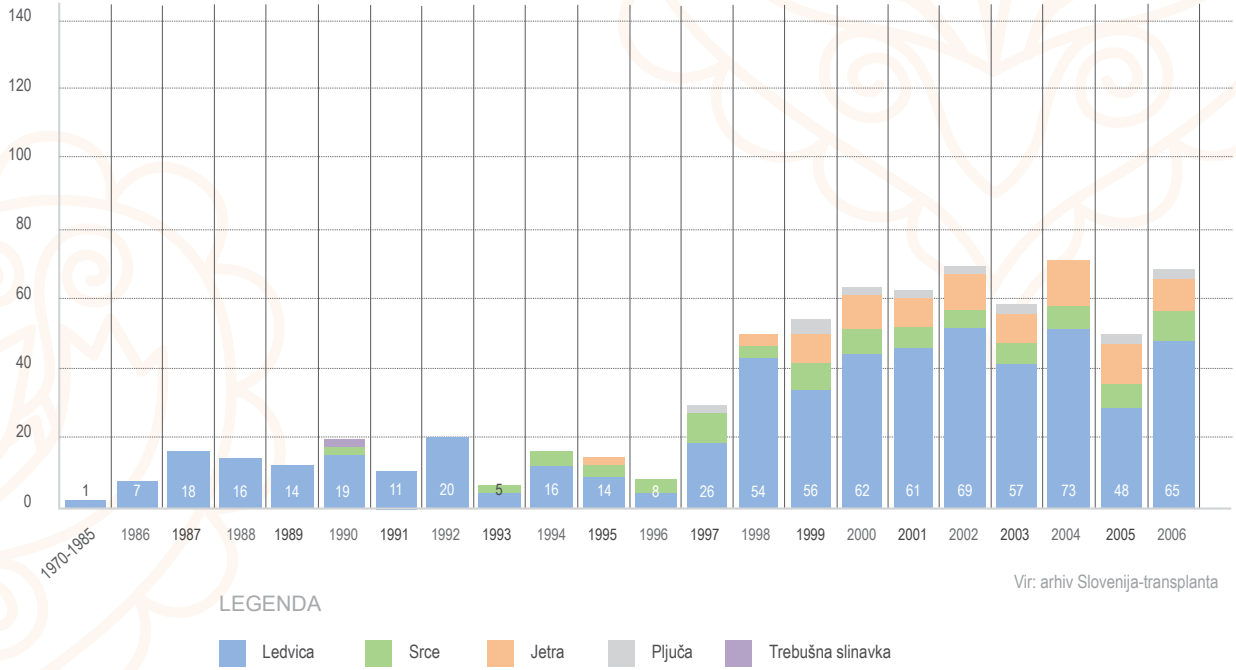
Leto	Ledvica	Srce	Jetra	Pljuča*	Trebušna slinavka	SKUPAJ
Od 1970 do 1985	1					1
1986	7					7
1987	18					18
1988	16					16
1989	14					14
1990	17	1			1	19
1991	11					11
1992	20					20
1993	4	1				5
1994	14	2				16
1995	10	3	1			14
1996	6	2				8
1997	19	6		1		26
1998	46	4	4			54
1999	37	7	9	3		56
2000	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

Vir: arhiv Slovenija-transplanta

Leto	Ledvica	Srce	Jetra	Pljuča*	Trebušna slinavka	SKUPAJ
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
SKUPAJ	**1.261**	**367**	**411**	**101**	**25**	**2.165**

* Večina presaditev pljuč pri slovenskih prejemnikih je bila do vključno leta 2018 opravljena v AKH na Dunaju, z izjemo 2003 (1 presaditev v UKC LJ) in 2018 (2 presaditvi v UKC LJ). V letu 2019 je bilo v UKC Ljubljana opravljenih 10 presaditev pljuč in ena pediatrična presaditev v AKH Dunaj, v letu 2020 so bile vse presaditve opravljene v UKC Ljubljana.
** Eno srce slovenskega darovalca je bilo presajeno slovenskemu bolniku v Gradcu.
*** Eno srce je bilo skupaj s pljuči presajeno slovenskemu bolniku na Dunaju.

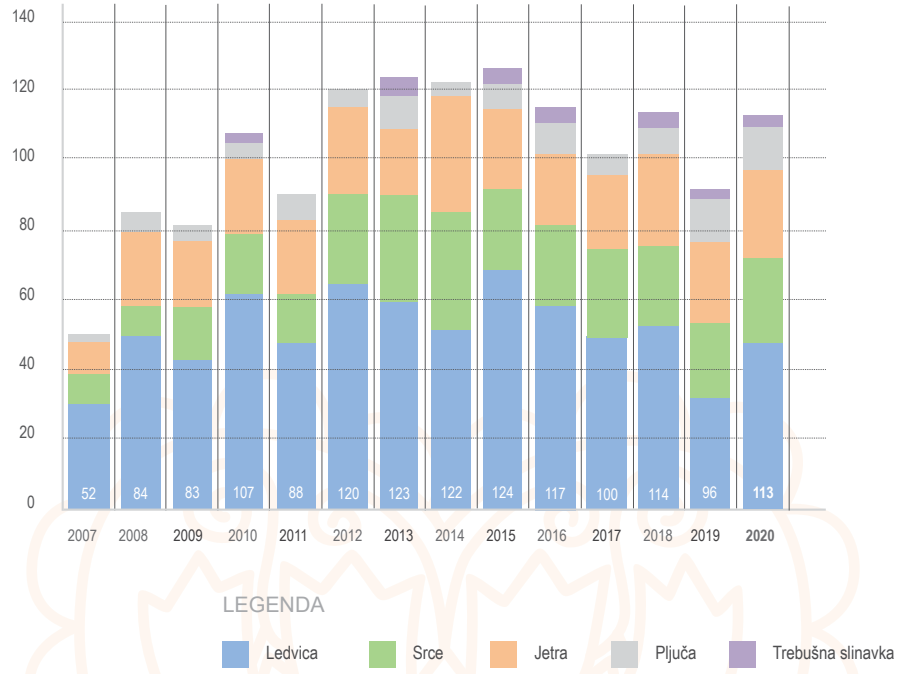
Število presajenih čvrstih organov umrlih darovalcev v Sloveniji od leta 1970 do 2006



Vir: arhiv Slovenija-transplanta

Število presajenih čvrstih organov umrlih darovalcev v Sloveniji od leta 2007 do 2020

2.165 presajenih čvrstih organov umrlih darovalcev v SLO **od 1970 do 2020**



Vir: arhiv Slovenija-transplanta

Število presajenih ledvic od živega darovalca

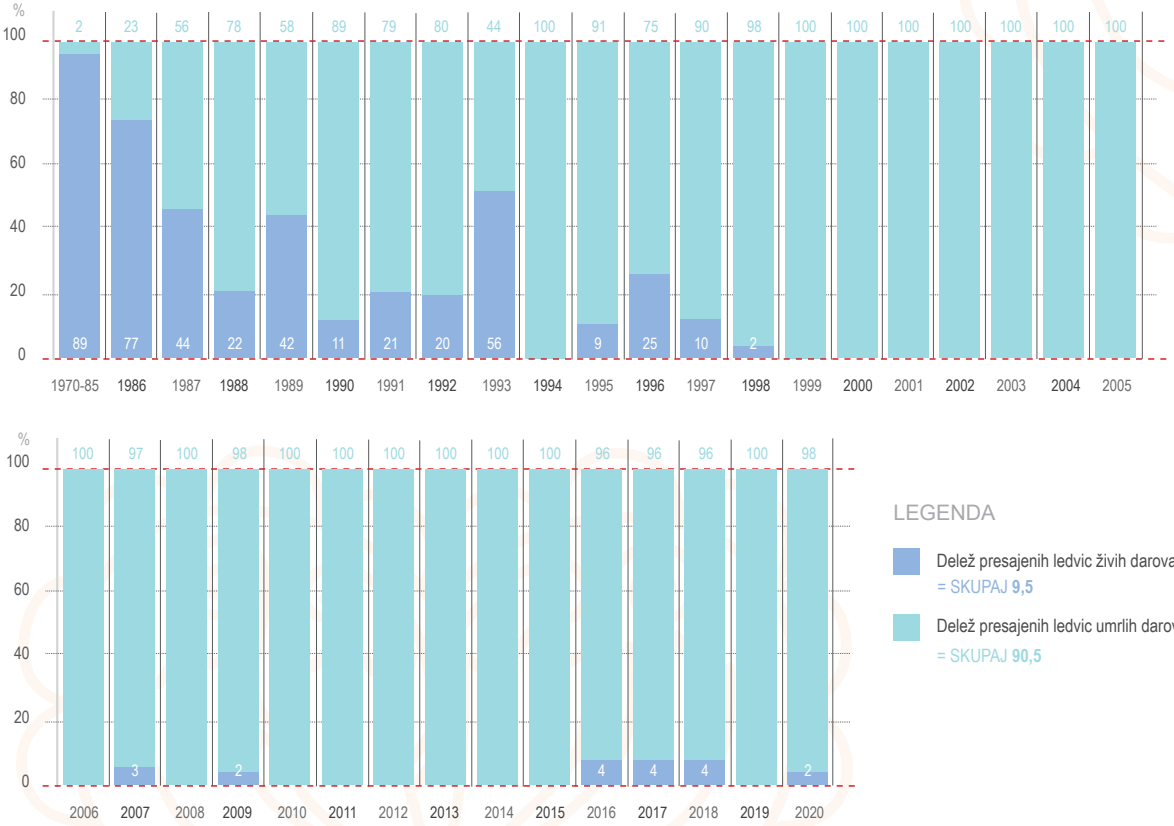
Zaenkrat je v Sloveniji za časa življenja možno darovati le ledvico med sorodniki ali čustveno povezanimi osebami. Vsak primer presoja Etična komisija za presaditve, ob upoštevanju načela, da mora biti tveganje za zdravje darovalca sorazmerno v primerjavi s pričakovano koristjo za prejemnika. Ob začetku slovenskega transplantacijskega programa, od leta 1970 dalje, so sprva prevladovale presaditve ledvic od živih sorodnih darovalcev, od leta 1986 naprej pa je bila z razvojem nacionalnega donorskega programa večina organov za presaditev pridobljenih od umrlih darovalcev. Program presaditev organov od živih darovalcev je počasi zamrl, vendar se od leta 2016 ponovno obuja. V letih 2016, 2017 in 2018 sta bili tako v UKC Ljubljana opravljeni po dve presaditvi ledvice živega darovalca, v letu 2020 pa ena tovrstna presaditev.

Število presajenih ledvic od živega darovalca 1970 - 2020

Leto	Št.	Leto	Št.	Leto	Št.	Leto	Št.	Leto	Št.	Leto	Št.
1970-85	43	1991	3	1997	2	2003	0	2009	1	2015	0
1986	23	1992	5	1998	1	2004	0	2010	0	2016	2
1987	14	1993	5	1999	0	2005	0	2011	0	2017	2
1988	13	1994	0	2000	0	2006	0	2012	0	2018	2
1989	10	1995	1	2001	0	2007	1	2013	0	2019	0
1990	2	1996	2	2002	0	2008	0	2014	0	2020	1

SKUPAJ	133

Deleži presajenih ledvic živih in umrlih darovalcev v % od 1970 do 2020



REZULTATI SLOVENSKIH PROGRAMOV ZA PRESADITVE ORGANOV

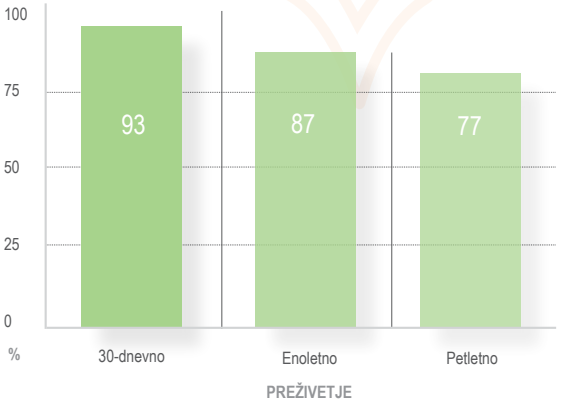
Preživetje bolnikov po presaditvi srca

Od 1990 do 2020 je bilo v UKC Ljubljana opravljenih 367 presaditev srca. V letu 2020 smo presadili 24 src, od tega je bilo 17 (71 %) bolnikov transplantiranih urgentno, 7 (29 %) pa elektivno. Najpogostejša vzroka za presaditev sta bili dilatativna kardiomiopatija (38 %) in ishemična bolezen srca (25 %), ostali vzroki pa so bili valvularna bolezen srca (21 %), nekompakcijska kardiomiopatija (8 %), amiloidoza srca (4 %) in kongenitalne hibe (4 %). Glede na podatke Eurotransplanta se je UKC Ljubljana ponovno uvrstil med prvih 10 (od 42) največjih centrov za presaditve srca v območju Eurotransplanta. Po številu opravljenih presaditev se lahko primerja z največjimi centri v Nemčiji, Belgiji, Avstriji in na Madžarskem.
Večletno povprečje (2009-2020) čakalne dobe za elektivno presaditev srca znaša 239 dni, za urgentno presaditev srca pa 56 dni. V 2020 je bila povprečna čakalna doba za elektivno presaditev srca 295 dni, za urgentno presaditev pa 38 dni.
Rezultati preživetja bolnikov po presaditvi so primerljivi z rezultati iz mednarodnega referenčnega registra ISHLT (The International Society for Heart & Lung Transplantation).

**Preživetje odraslih bolnikov po presaditvi srca v %
(za obdobje 1990–2020, n = 367)**

30-dnevno preživetje	Enoletno preživetje	Petletno preživetje
93 %	87 %	77 %

Vir: Poročilo o delovanju programa za napredovalo srčno popuščanje in presaditev srca za leto 2020 (KO za kardiologijo, UKC Ljubljana)



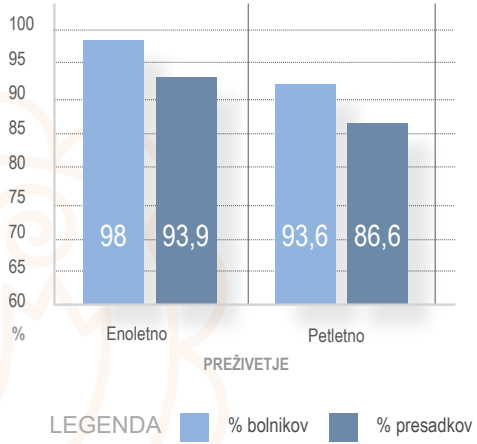
Preživetje bolnikov po presaditvi ledvice

V Sloveniji je bilo v obdobju po priključitvi Eurotransplantu (1. 1. 2000–31. 12. 2020) presajenih 1.030 ledvic umrlih (1021 ledvic) in živih (9 ledvic) darovalcev. Nekaterim prejemnikom so ledvico presadili v kombinaciji z drugimi organi: 24 pacientom skupaj s trebušno slinavko, trem pacientom skupaj s srcem in dvema pacientoma skupaj z jetri. V prvem letu po presaditvi so pri 12,8 % vseh bolnikov s presajenim organom zaznali klinično, z biopsijo dokazano akutno zavrnitev presadka. Pojavnost klinične, z biopsijo dokazane zavrnitve presajene ledvice je primerljiva s podatki v literaturi in z drugimi centri v razvitem svetu.

Mediani čas od uvrstitve na čakalni seznam do presaditve je približno 300 dni za obdobje od 2010 do 2019. V letu 2020 je bil mediani čas od vključitve na čakalni seznam do presaditve 440 dni.

Preživetje bolnikov in presadkov po presaditvi ledvice v % (za obdobje 2000–2020, n = 1030)

Enoletno preživetje	Petletno preživetje
Bolniki	
98 %	93,6 %
Presadki	
93,9 %	86,6 %
94,8 %*	90,3 %*



* krnjeno za smrt z delujočim presadkom
Aktualno 1- in 5-letno preživetje slovenskih bolnikov in presadkov je po podatkih Eurotransplanta za obdobje 2000–2014 nad povprečjem držav članic Eurotransplanta in je primerljivo z najrazvitejšimi centri v svetu.

Vir: Kazalniki kakovosti Centra za transplantacijo ledvic (KO za nefrologijo, UKC Ljubljana)

Preživetje bolnikov po presaditvi jeter

V obdobju od 1995 do 31. 12. 2020 je bilo v UKC Ljubljana opravljenih 411 presaditev jeter. 63 % bolnikov je potrebovalo presaditev zaradi ciroze jeter, 10 % zaradi akutne odpovedi jeter, 9,7 % zaradi raka na jetrih, 9,3 % zaradi holestatske/kongenitalne bolezni in 2,1 % zaradi presnovne bolezni jeter. Med ostale vzroke za presaditev (5,9 %) sodijo še benigni jetrni tumorji ali policistična bolezen jeter in Budd-Chiarijev sindrom.

Povprečna čakalna doba za presaditev jeter za leto 2020 brez visoko urgentnih primerov je približno 290 dni, mediana znaša 124 dni. Skupaj z visoko urgentnimi primeri pa je povprečna čakalna doba 268 dni, mediana 105 dni.

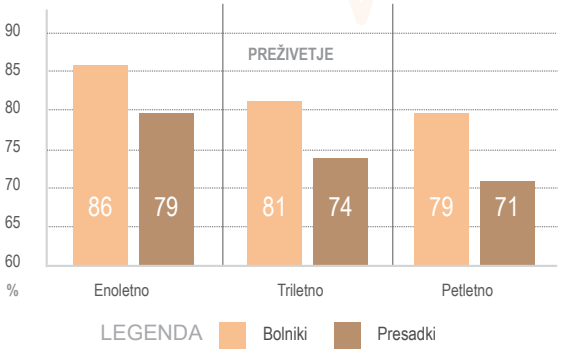
Vir: Podatki KO za gastroenterologijo, UKC Ljubljana

Preživetje bolnikov in presadkov po presaditvi jeter v % (za obdobje 1988–2019*, n = 291, bolniki) in (n = 323, presadki))

Enoletno preživetje	Triletno preživetje	Petletno preživetje
Bolniki		
86 %	81 %	79 %
Presadki		
79 %	74 %	71 %

ELTR (European Liver Transplant Registry, SLLUBL: Specific Analyses, june 2019)

* Podatki za leto 2020 bodo na voljo šele v sredini leta 2021, zato objavljamo razpoložljive podatke za obdobje od 1988 do junija 2019.



Preživetje bolnikov po presaditvi trebušne slinavke (sočasno z ledvico)

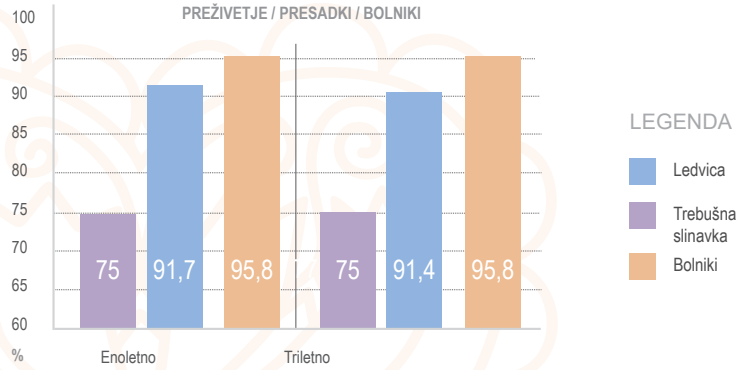
V obdobju od februarja 2009 do 31. 12. 2020 je bilo v Sloveniji opravljenih 24 sočasnih presaditev ledvice in trebušne slinavke. V letu 2020 sta bili opravljeni dve sočasni presaditvi ledvice in trebušne slinavke.

Eno leto po presaditvi je bilo delujočih 18 trebušnih slinavk, 5 trebušnih slinavk je bilo odstranjenih v zgodnjem po-transplantacijskem obdobju. En bolnik je umrl v zgodnjem po-transplantacijskem obdobju zaradi okužbe. Konec leta 2020 smo imeli v Sloveniji 16 bolnikov z delujočo presajeno trebušno slinavko in ledvico

Preživetje bolnikov in presadkov po sočasni presaditvi trebušne slinavke in ledvice v % (za obdobje 2009–2020, n = 24 (bolniki) in n = 19 (presadki))

Enoletno preživetje		Triletno preživetje	
Bolniki			
95,8 %		95,8 %	
Presadki			
T. slinavka	Ledvica	T. slinavka	Ledvica
75 %	91,7 %	75 %	91,4 %

Vir: Poročilo – izr. prof. dr. Damjan Kovač, dr. med. (KO za nefrologijo, UKC Ljubljana)



Preživetje bolnikov po presaditvi pljuč

V obdobju 1997–2020 je bilo pri slovenskih bolnikih opravljenih 85 presaditev pljuč, od tega je bila pri enem bolniku opravljena ponovna presaditev. V letu 2020 so v UKC Ljubljana opravili 16 presaditev pljuč, od tega 14 presaditev obeh pljučnih kril in dve presaditvi enega pljučnega krila. Pet presaditev je bilo nujnih, med njimi je bil bolnik, ki je potreboval presaditev pljuč zaradi sindroma akutne dihalne stiske po okužbi s covid-19.

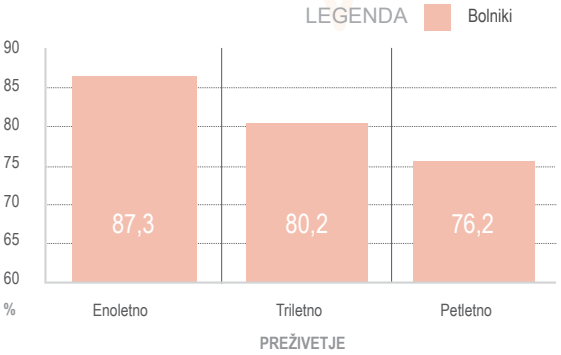
Najpogostejši vzrok za presaditev pljuč (od začetka izvajanja programa presaditev za slovenske bolnike na Dunaju in od leta 2018 v Ljubljani) so bili cistična fibroza (27 %), kronična obstruktivna pljučna bolezen (26 %), pljučna fibroza (26 %) in pljučna hipertenzija. Če upoštevamo samo presaditve, opravljene v UKC Ljubljana od 2018 do 2020, so bili glavni vzroki za presaditev pljuč kronična obstruktivna pljučna bolezen (36 %), pljučna fibroza (26 %), cistična fibroza (18 %) in bronhiektazije (7 %). Celokupna povprečna čakalna doba za presaditev pljuč (za redne in nujne presaditve) je bila v letu 2019 148 dni, v letu 2020 pa 78 dni.

Leta 2020 je bila za nujne transplantacije povprečna čakalna doba 7 dni, za redne pa 111 dni.

Preživetje bolnikov po presaditvi pljuč v % (za obdobje 1997–2020, n = 101)

Enoletno preživetje	Triletno preživetje	Petletno preživetje
Bolniki		
87,3 %	80,2 %	76,2 %

Vir: Poročilo - doc. dr. Matevž Harlander, dr. med. (KO za pljučne bolezni in alergologijo, UKC Ljubljana)



Tkiva in celice

PRESADITVE KRVOTVORNIH MATIČNIH CELIC

Presaditev krvotvornih matičnih celic (KMC) je najbolj razširjena oblika celičnega zdravljenja, saj se na ta način zdravi več kot 70 malignih in nemalignih bolezni, pri določenih hematoloških obolenjih pa je glavna terapevtska in tudi edina možnost za ozdravitev. Sodoben način zdravljenja s KMC v optimalnih pogojih dosega več kot 90-odstotno uspešnost (http://www.ztm.si). Za takšen uspeh pa je potrebno dobro imunsko (HLA) ujemanje darovalca in prejemnika. Sistem HLA je pri vsakem človeku raznolik in zato je najti ustrezen par zelo zahtevno delo. V mednarodni skupnosti so se zdravniki odločili za ustanovitev večjih registrov tipiziranih prostovoljnih darovalcev KMC, ki bi omogočali bistveno večjo možnost za ujemanje HLA in s tem uspešnost presaditve.

Poznamo več vrst ujemanja med darovalcem in prejemnikom. Kadar je možno uporabiti lastne KMC, to imenujemo avtologno darovanje. Če to ni možno, iščemo drugega darovalca, ki je s prejemnikom v sorodu ali pa ne. Darovanje drugega darovalca imenujemo tudi alogenično, pri čemer iščemo darovalca najprej v Sloveniji in nato v tujini.

Register Slovenija Donor

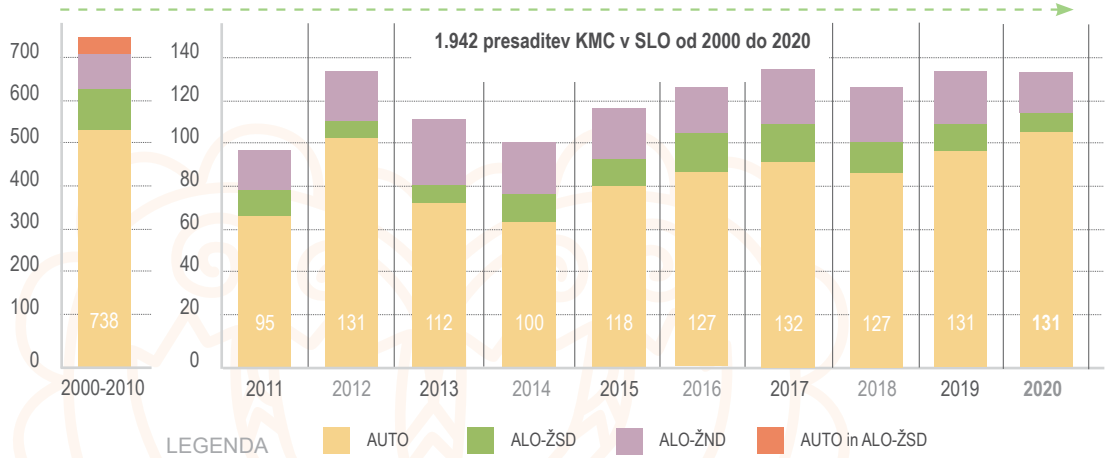
V Sloveniji je bil leta 1991 ustanovljen register nesorodnih darovalcev Slovenija Donor, ki je naslednje leto postal polnopravni član svetovnega registra Bone Marrow Donors Worldwide (BMDW).
Na dan 31. 12. 2020 je bilo v register Slovenija Donor vpisanih 20.453 oseb, od tega jih je bilo v svetovni register BMDW vpisanih 20.255.

Presaditve KMC v Sloveniji od leta 2000 do 2020

Tip presaditve	2000-2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
AUTO	531	68	101	74	63	84	86	92	88	89	104
ALO-ŽSD	102	9	8	7	11	10	15	12	13	11	10
ALO-ŽND	84	18	22	31	26	24	26	28	26	31	17
AUTO in ALO-ŽSD	21										
SKUPAJ	738	95	131	112	100	118	127	132	127	131	131

AUTO – avtologne presaditve, **ALO** – alogenske presaditve, **ŽSD** – živi sorodni darovalec, **ŽND** – živi nesorodni darovalec

Vir: Letno poročilo ZTM – Slovenija donor, podatke mesečno zbiramo za arhiv Slovenija-transplanta.



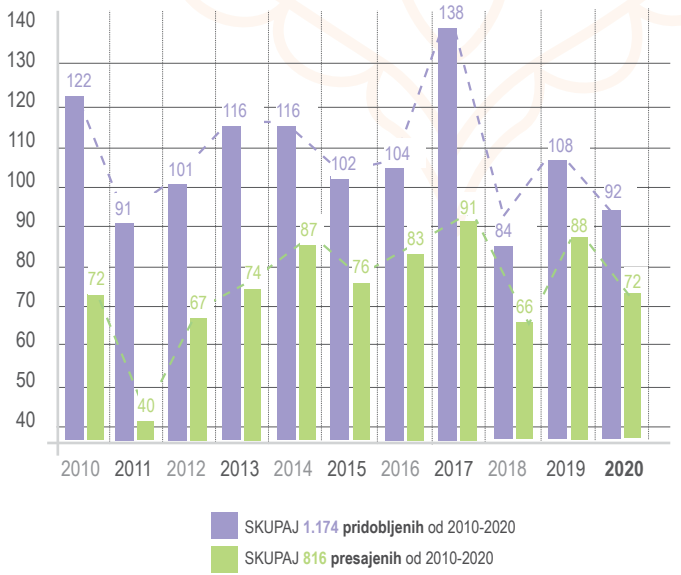
PROGRAM PRIDOBIVANJA IN PRESADITVE ROŽENIC

Zdravljenje s presaditvijo roženic je ena najpogostejših in tudi najuspešnejših presaditev tkiv na svetu. Takšen način zdravljenja pogosto predstavlja edini način, s katerim izboljšamo vid zaradi predhodnega obolenja oz. poškodb.

Pridobljene in presajene roženice od leta 2010 do 2020

Vir: arhiv Slovenija-transplant

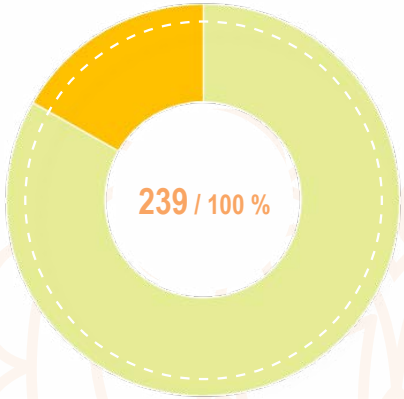
Leto	Št. pridobljenih roženic	*Št. presajenih roženic
2010	122	72
2011	91	40
2012	101	67
2013	116	74
2014	116	87
2015	102	76
2016	104	83
2017	138	91
2018	84	66
2019	108	88
2020	92	72



* Podatki o presaditvah na Očesni kliniki UKC Ljubljana v obdobju 2010–2017, od leta 2018 dalje pa so vključene tudi presaditve na Oddelku za očesne bolezni UKC Maribor

V Sloveniji pridobivamo roženice od umrlih darovalcev po dokončni zaustavitvi srca ali po dokazani možganski smrti. Odvzem roženic je možen po predhodni privolitvi umrle osebe v času življenja oz. ob nenasprotovanju bližnjih. Dokončno odločitev o primernosti roženice za presaditev vselej sprejme prejemnikov odgovorni zdravnik. Presaditev roženice izvajamo v dveh transplantacijskih centrih: na Očesni kliniki v UKC Ljubljana ter na Oddelku za očesne bolezni v UKC Maribor.

Čakalni seznam bolnikov za presaditev roženice na Očesni kliniki v UKC Ljubljana (na dan 22. 3. 2021) in UKC Maribor (na dan 11. 2. 2021)



Diagnoza	Število bolnikov
Keratokonus	40
Ostale diagnoze	199
SKUPAJ	**239**

232 bolnikov UKC Ljubljana, **7** bolnikov UKC Maribor

LEGENDA

Keratokonus: **40 bolnikov (17 %)**

Ostale diagnoze: **199 bolnikov (83 %)**
(poškodbe, degeneracija, retransplantacija, makule roženice, distrofija Fuchs, endotelna distrofija, cornea guttata, afaka in psevdofaka, keratopatija bullosa, vnetja, drugo)

Vir: UKC Ljubljana, Očesna klinika; UKC Maribor, Oddelek za očesne bolezni

OSTALA TKIVA IN CELICE

Sledljivost in transparentnost v programih presaditve oz. uporabe tkiv in celic za namen zdravljenja

V Slovenija-transplantu smo vzpostavili sodelovanje z vsemi ustanovami za tkiva in celice, ki imajo veljavno dovoljenje Javne agencije za zdravila in medicinske pripomočke (v nadaljevanju: JAZMP). Sledljivost in transparentnost zagotavljamo z zbiranjem in pregledovanjem sprotnih poročil ustanov za tkiva in celice, ki nam poročajo o darovanju, pridobivanju, procesiranju, shranjevanju, dodeljevanju, uporabi in uničenju tkiv in celic.

Po zaključku leta na osnovi letnih poročil posameznih ustanov za tkiva in celice v Slovenija-transplantu pripravimo zbirno letno poročilo. Prav tako pripravimo letno zaključno poročilo o hudih neželenih dogodkih in reakcijah ter ga posredujemo JAZMP, ki nato poroča Evropski komisiji.

Ustanove za tkiva in celice ter zagotavljanje kakovosti in varnosti

V Sloveniji je na nacionalni ravni v dejavnost preskrbe s tkivi in celicami vključenih 27 ustanov. Od tega je v program vključenih 15 bolnišnic in znotraj teh 40 kliničnih oddelkov. Glede na status je 18 ustanov za tkiva in celice javnih in 9 ustanov zasebnih. Zasebne ustanove imajo dovoljenje izključno za avtologno pridobivanje tkiv in celic.

Slovenija-transplant in JAZMP zagotavljata delovanje sistema ter sproti ugotavljata in obravnavata vse odklone, ki lahko vplivajo na kakovost in varnost tkiv in celic darovalcev, prejemnikov in osebja, ki je vključeno v posamezne procese.

Za pridobitev dovoljenja mora vsaka ustanova izpolnjevati stroge strokovne in zakonske pogoje. Vse ustanove imajo vzpostavljen sistem kakovosti, v katerem so opisani vsi postopki za zagotavljanje pogojev za kakovost tkiv in celic ter varnost prejemnikov. Vse ustanove redno nadzoruje JAZMP, v preverjanje sporočenih podatkov pa je vključen tudi Slovenija-transplant.

Oploditev z biomedicinsko pomočjo in reproduktivne celice

V Sloveniji so registrirani 4 centri za dejavnost oploditve z biomedicinsko pomočjo parom, ki ne morejo zanositi po naravni poti: OBMP Ljubljana, OBMP Maribor, OBMP Postojna in ZC Dravlje. Obseg dejavnosti je razviden iz tabele o pridobljenih in uporabljenih tkivih in celicah. Omenjeno področje spada po številu izvedenih postopkov med najobsežnejše.

V letu 2019 je Ministrstvo za zdravje RS vzpostavilo strokovno skupino, v kateri sodelujejo centri za OBMP Ljubljana, Maribor, Postojna, zasebni zavod Zdravje in zavod Slovenija-transplant. Skupina pripravlja strokovne smernice in zakonodajo za vzpostavitev nacionalnega registra OBMP, v katerega bodo posamezni centri OBMP v predvidenem časovnem roku sporočali podatke o svoji dejavnosti. Upravitelj registra bo NIJZ, kjer bo ta register tudi fizično nameščen. Slovenija-transplant bo imel dostop do podatkov za namen zagotavljanja sledljivosti, transparentnosti ter kakovosti in varnosti tkiv in celic. V letu 2020 je bilo delo strokovne skupine ustavljeno zaradi epidemije covid-19.

Pridobivanje in shranjevanje popkovnične krvi in popkovnice

V Sloveniji pridobivamo tudi krvotvorne matične celice iz popkovnične krvi in popkovnice ter tudi drugih tkiv (npr. mlečni zobje). Dovoljenje za delo imajo ena javna tkivna banka – Zavod za transfuzijsko medicino (v nadaljevanju: ZTM) in tri zasebne ustanove (Izvorna celica, Biobanka in FH-S). Javna banka popkovnične krvi pri ZTM je s 1. 12. 2014 zaključila s sprejemanjem vzorcev popkovnične krvi, saj je bilo zbranih in shranjenih zadostno število vzorcev, da lahko zadostijo potrebam v Sloveniji.

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

Število pridobljenih tkiv in celic od 2009 do 2020

Leto	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Koža*	28	45	22	36	85	89	52	57	32	22	24	10
Kosti*	38	123	108	67	93	82	147	74	80	78	71	59
Mehkokostni presadki*	22	39	/	3	11	3	9	/	12	/	/	/
Hrustanec*	37	21	4	12	11	11	12	/	/	/	/	/
Reproduktivne celice (št. celic)	15.854	43.472	8.640	27.479	41.929	37.542	39.769	26.191	36.338	13.778	26.813	28.209

*Enota: število odvzetih vzorcev

Število uporabljenih tkiv in celic od 2009 do 2020

Leto	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Koža*	36	10	14	34	67	23	31	28	/	20	3	/
Kosti*	23	47	57	97	59	62	92	82	72	71	81	101
Mehkokostni presadki*	12	/	2	2	3	4	3	5	2	3	5	4
Hrustanec*	15	/	3	7	4	9	5	1	/	/	1	/
Reproduktivne celice*	1.450	2.018	29.651	23.330	23.506	27.271	31.127	26.620	31.817	12.110	5.109	14.255

*Enota: število uporabljenih vzorcev

Vir: arhiv Slovenija-transplanta

Število enot pridobljene popkovnične krvi

Ustanova / Leto	2015	2016	2017	2018	2019	2020
Izvorna celica	76	144	107	82	81	81
Biobanka	175	178	266	110	224	197
FH-S	8	45	101	169	192	206
Neocelica	238	0*	0*	0*	0*	0*

*Ustanova prenehala z delovanjem

Število enot pridobljene popkovnice

Ustanova / Leto	2015	2016	2017	2018	2019	2020
Izvorna celica	60	116	96	52	73	75
Biobanka	32	150	222	96	212	184
FH-S	8	42	96	114	196	213
Neocelica	198	0*	0*	0*	0*	0*

*Ustanova prenehala z delovanjem

Vir: arhiv Slovenija-transplanta

Neželeni dogodki in reakcije

Slovenija-transplant je odgovoren za obravnavo neželenih dogodkov in reakcij ter odklonov na področju preskrbe s tkivi in celicami zaradi presaditve, t. i. histovigilanco. Namen zbiranja poročil o neželenih dogodkih in reakcijah ali tudi postavitev suma nanje, je zagotavljanje kakovosti postopkov in s tem preprečevanja tveganja za zdravje pacientov, osebja, škode ali celo izgube tkiv in celic.

Poročanje poteka na predpisanih obrazcih, za posamezen primer je treba oddati začetno in končno poročilo. Oba obrazca sta prilogi Pravilnika o histovigilanci. Poročanje poteka v več fazah: zaznava odklona, natančen opis, sprejem ustreznih ukrepov za preprečitev škode na tkivih in celicah ter ljudeh, poročanje pristojnim inštitucijam in obveščanje vseh ustanov za tkiva in celice, ki so dobila tkiva in celice, pri katerih je prišlo do odklona.

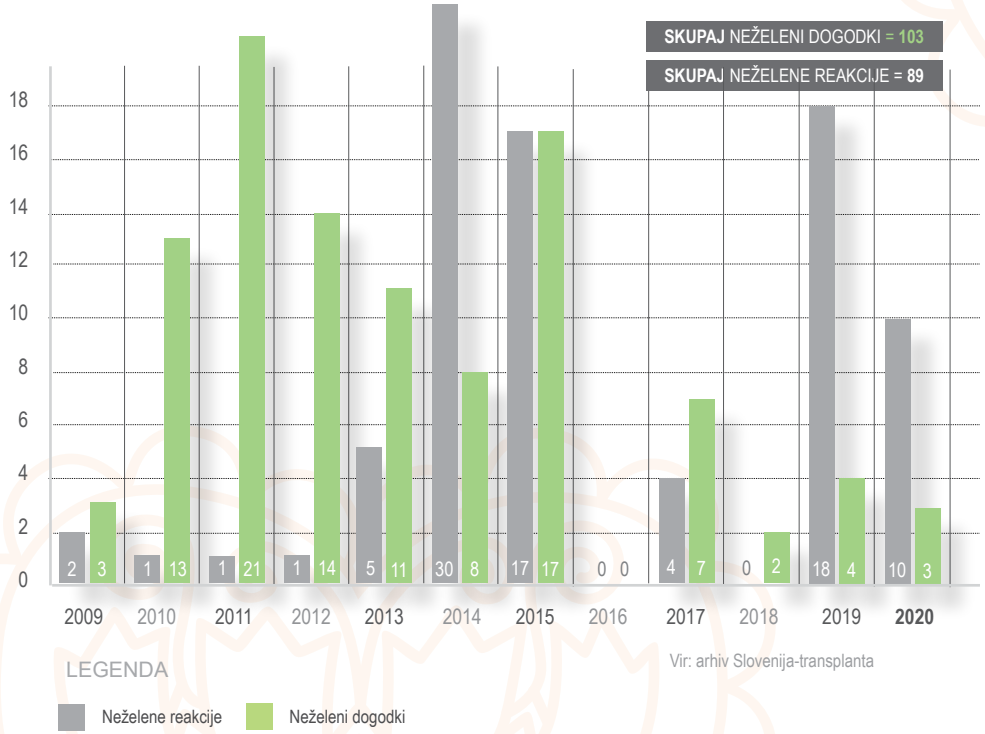
Vsi podatki, ki se zbirajo v sistemu histovigilance, so anonimizirani, da se zagotovi zasebnost in na drugi strani upošteva t. i. kulturo neobtoževanja, kar pomeni, da se spodbuja poročanje, iščejo se rešitve oz. izboljšave in ni obsojanja izvajalcev na osebni ravni.

V letu 2020 je Slovenija-transplant prejel 3 poročila o neželenih dogodkih, ki so nastali v verigi preskrbe s tkivi in celicami. Vsi trije primeri so bili zaznani v Ortopedski bolnišnici Valdoltra pri pridobivanju kosti. Pripravili smo analizo in korektivne ukrepe. V vseh treh primerih ni bilo posledic, tveganje za ponovitev je bilo ocenjeno kot nizko.

V centru OBMP smo obravnavali tudi 10 primerov neželenih reakcij. V treh primerih je šlo za sindrom ovarijske hiperstimulacije, kjer so 3 pacientke sprejeli v bolnišnično zdravljenje. V 7 primerih pa je prišlo do močnejše venozne krvavitve, a hospitalizacija ni bila potrebna.

Ugotavljamo, da je treba zaradi boljše ozaveščenosti organizirati dodatno izobraževanje na temo histovigilance in poročanja o neželenih dogodkih, saj je možno, da je sporočanje podatkov glede vigilančnih primerov nekoliko podcenjeno.

Število neželenih dogodkov in reakcij od 2009 do 2020



Vir: arhiv Slovenija-transplanta

OBJAVE IN PREDAVANJA NA KONFERENCAH

Pregledni in izvirni znanstveni članki

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Donation and transplantation activity in Slovenia in 2020

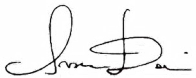
Introductory words

Our annual publication »Give life a chance« presents statistical data and key highlights of donation and transplantation activity in Slovenia in 2020. Last year we celebrated an important anniversary of 20 years of Slovenia's successful cooperation with Eurotransplant. A solemn symposium was held in January in cooperation with University Medical Center Ljubljana.

In the last year, marked with covid-19 epidemic, Slovenia ones more proved its quality in deceased donation program and transplant treatment. We achieved excellent results, the number of deceased organ donors and transplantations were even higher compared to 2019. Despite demanding and unpredictable working conditions in overwhelming healthcare crisis, programmes have remained active. Appropriate safety measures and adjustments in professional protocols were issued frequently.

We are especially pleased we have managed to uphold the tonus of national deceased donation programme. Namely lack of human resources and facilities were especially noticeable in the intensive care units, where deceased donors are identified, evaluated and maintained. Every day we have been faced with ever changing working conditions and in case of organ exchange within Eurotransplant, adaptations to the rules in international traffic and safety protocol in donor centres abroad. Under these difficult conditions, every utilized deceased donor and transplantation was a big professional and logistical success.

With regular interpersonal communication, daily or weekly videoconferences we sustained motivation, dedication and cohesiveness of co-workers in national transplant network. From the start of epidemics, our focus was on keeping the donation and transplantation programmes active, on the usage of every procured organ and on assuring transplant treatment for patients on a waiting list. On this occasion, we also express our sincere gratitude to the relatives of the deceased. With consent to donation they demonstrated humanity and care for others in these particularly perplexing times.



Chief Phys. Danica Avsec, MD, Councillor,
Director of the Slovenija-transplant Institute and responsible physician for donation activity

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 transplant activity in Slovenia. Established in 1998, Slovenija--transplant is the primary co-ordination office of the national transplantation network. The national 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 transplant is possible for all who need it. The national network operates continuously and its expert teams are in a state of readiness 24 hours a day, every day of the year.

Since 2000 Slovenia has been a member of Eurotransplant, a non-profit organisation for organ and tissue exchange. After meeting the demanding entry criteria, it was the first country in the region to join the group of five successful countries in the area of transplant treatment, i.e. Germany, Austria, Belgium, Luxembourg and the Netherlands. In 2002, Slovenija-transplant signed a co-operation agreement with Eurotransplant. Today, Eurotransplant, with its registered seat in Leiden in the Netherlands, brings together 8 countries and over 137 million inhabitants. This membership is important for our patients because, upon joining Eurotransplant, the chances of their survival and transplant treatment outcomes have improved considerably, especially for life-threatening conditions like acute heart and liver failure and other special cases (e.g. children, hypersensitive patients). Thanks to our co-operation, the waiting lists have been shortened significantly, the national transplant programmes are fully operating and we have also introduced combined transplants. First and foremost, we have been able to ensure greater donor–recipient tissue compatibility. Tissue incompatibility can make finding an appropriate organ for certain patients impossible in Slovenia. In 2020 we celebrated our impressive 20th anniversary of our successful co-operation with Eurotransplant by organising a series of events.

Since being established, the Institute has been constantly developing in line with international guidelines. We strive to create an educated and motivated professional public and, by way of multipronged communication, consistently increase the public's trust in transplantation medicine. Our membership in international professional committees and participation in European projects has given us an equal footing in the international arena, including as active co-creators of strategies, development and expert training in international donor and transplant activities. 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-commercialism | transparency | voluntary donation | prevention of abuse.

Since being established, Slovenia-transplant's Director has been Chief Phys. Danica Avsec, MD, Councillor and the responsible physician for donor activity. The Institute operates under the auspices of the Ministry of the Republic of Slovenia for Health. In 2020, the Institute employed 9 full-time staff and was working with 90 people under contract in the donor programme.

www.slovenija-transplant.si

@SloTransplant

Achievements and highlights of 2020

Successfuly meeting the challenges of the Covid-19 epidemic

Number of deceased donors and transplantation of solid organ was higher compared to 2019. Due to restrictions in international transport, logistics, and various epidemiological protocols in the countries additional efforts were made to ensure continuous cooperation and exchange of organs and tissues with Eurotransplant member states.

High level of consent to donation

70 explanatory interviews with relatives were performed. Big majority of relatives (76%) gave consent to donation, which indicates a high public trust in our work and the donation system.

Moving professional milestones in the national lung transplant program at University Medical Center Ljubljana

First paediatric lung transplantation was performed and a 34-year-old patient needed urgent lung transplantation due to complications after Covid-19 disease. Professionally demanding lung transplantation was performed at the Transplantation center of University Medical Center Ljubljana. This is internationally rare and exceptional professional achievement.

Continuous success of the national heart transplant program at University Medical Center Ljubljana

Slovenia has been a world leader in the number of transplanted hearts per million people in the past few years.

50th anniversary of the first kidney transplantation

Exactly fifty years passed from the first organ transplantation – a kidney of a living donor – in Slovenia and also in the area of former Yugoslavia.

Excellent cooperation with the media

We have published more than 40 in-depth newspapers interviews and appeared in the media more than 180 times. In cooperation with RTV Slovenia, we developed 12-minute documentary about organ donation and transplantation.

New informative leaflets on organ and tissue donation

We have designed and printed new information leaflets with basic information on organ and tissue donation. The content is interesting and useful for the general public, primary care health professionals and the media. 13,000 copies of the new leaflets were distributed in 76 primary health centres in Slovenia.

Celebration of the 20th anniversary of cooperation with Eurotransplant

In January, we celebrated the 20th anniversary of excellent cooperation with Eurotransplant. Gala symposium was co-organized with the University Medical Centre Ljubljana.

Signing of a new agreement with University Medical Center Ljubljana

After 17 years we have signed a new agreement of cooperation with University Medical Center Ljubljana in the field of organ donation and transplantation. The agreement brings novelties mainly with a clear definition and division of tasks between all parties involved in the donor and transplantation program, and also the role of the hospital transplant coordinator and division of costs in University Medical Center Ljubljana is redefined.

Decline in the number of donation declarations in the national register

Compared to previous years, fewer people have made a declaration in the national register of designated persons, despite the possibility of making the declaration electronically.

CELEBRATION OF THE 20TH ANNIVERSARY OF COOPERATION WITH EUROTRANSPLANT,
UMC LJUBLJANA, JANUARY 2020
FOTO: ANDREJ ZORE

20 years of Slovenia's successful cooperation with Eurotransplant

2020 was marked with the important 20th anniversary of Slovenia's successful cooperation with Eurotransplant (ET), an international non-profit organization for the exchange of organs and tissues. After years of preparation, Slovenia fulfilled the demanding entry requirements in 2000 and was the first country in the region of South East Europe to join ET. We have thus joined a large group of five successful and advanced countries in the field of transplant treatment (Germany, Austria, and Benelux). Today, the organization brings together eight countries with a total population of over 137 million.

The responsibility of every country and health care system is to ensure patients have access to quality and ethical transplant treatment and to establish a transparent and safe organ and tissue donation system. In Slovenia, the national transplant network was established in 1998, but unfortunately some patients did not receive the appropriate organ and treatment in time due to tissue incompatibility. For a small country like Slovenia, cooperation enabled significantly better treatment outcomes for many patients, who benefited from a larger "donor pool" within ET. More consistent tissue matching between kidney donors and recipients was made possible (before ET in the period 1970-1998, HLA tissue compatibility was achieved in 20-35% of cases). Moreover better treatment options were assured for special cases (children, hypersensitive patients) and high-urgent cases (e.g. acute heart and liver failure).

The accession contributed to significant improvements in national donor and transplant programs in Slovenia. Direct positive impact was seen in the significant rise of national deceased donation rates, reduced loses of procured organs, and optimizations in programs for kidney, heart, lungs, and liver transplantation (the number of kidney transplants from deceased donors was 2.8 times higher per year than in the previous 14 years, kidney transplant from living donors were carried out only sporadically). Combined transplantations were also launched.

In addition to patients, professionals also benefited from cooperation. Constant exchange of knowledge and experiences between Member States has contributed to the development of programmes at national and international level. This enabled to enforce and adapt to the quality standards of larger countries with a longer tradition and great potential for progress. ET's professional decisions and orientations have always been made through co-decision of experts from all Member States and verification of compliance with national laws. In addition to experts from the University Medical Center Ljubljana, this task has been performed by the Slovenija-transplant.

To celebrate this important anniversary, a symposium with solemn opening was held on 17th of January 2020 at the University Medical Centre Ljubljana. The event attracted large professional audience, with many prominent figures from medical and political sphere. The presentations gave an in-depth overview of the whole chain in donation and transplantation activities: from tissue typing, donor detection and evaluation, education of healthcare professionals, raising public awareness, organization of national donor network and allocation, to techniques, achievements and challenges in transplantation programmes and post-operative care of patients.

Altogether, the excellent all-day symposium demonstrated the connectedness, high professionalism, enthusiasm, complexity, advances, innovativeness and successes in organ donation and transplantation in Slovenia. The event was also an opportunity to celebrate well-established cooperation in the national transplant network between Slovenija-transplant, transplant centre at UMC Ljubljana and donor hospitals around Slovenia. With good inter personal communication and collaboration we will continue to ensure high quality, accessible and safe transplant treatment for Slovenian patients in need.

Key statistics for 2020

DECEASED DONORS 47

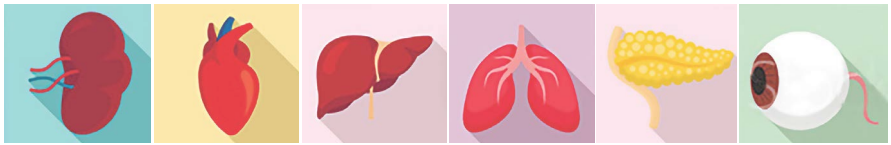
DECEASED DONORS IN 2020 BY AGE GROUPS

0<18 YEARS	18-59 YEARS	+60 YEARS
0	23	24

Average age was 59 years.

DECEASED DONORS DONATED 136 ORGANS

2020



KIDNEY	HEART	LIVER	LUNG	PANCREAS	CORNEA
68	17	34	13	4	92

NATIONAL REGISTER OF DESIGNATED PERSONS ABOUT POST-MORTEM ORGAN AND TISSUE DONATION

Slovenia ranks among most successful countries in terms of the consent rate for donation.

752
(6 against)
2020

Defined 10.618 people
of which 10.598 FOR, and 20 against.

CONSTANT FOR ORGAN AND TISSUE DONATION

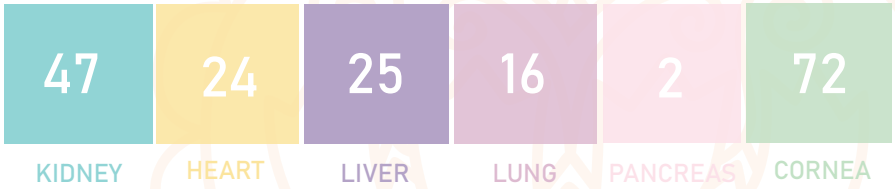
CONSENT RATE **76 %**

Transplant coordinators performed 70 family interviews with relatives of the deceased.

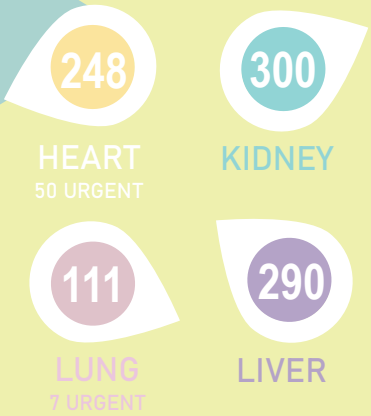
IN THE CENTER FOR TRANSPLANTATION ACTIVITY IN UKC LJUBLJANA 114 ORGANS WERE TRANSPLANTED

204 patients are on the waiting list for transplantation
(status on 31. 12. 2020)

2020



AVERAGE WAITING TIME (IN DAYS)



Solid organs

NATIONAL WAITING LIST FOR ORGAN TRANSPLANTATION

The waiting list is a list of patients needing a part of a human body for medical transplantation purposes. The indications for transplantation are specific to each organ/tissue/cell. All patients in the Republic of Slovenia have the same possibility of being included on the list of recipients and have equal access to this treatment. By the end of 2020, 204 patients were waiting for an organ transplant. The number was lower compared to 2019 due to Covid-19 epidemic. The average waiting period for all organs is relatively short compared to other 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 chapter The Results of Slovenian Organ Transplant Programmes.

In 2020, 93 Slovenian patients have been included on the waiting list for the first time: 27 for a kidney, 29 for a heart, 8 for a lung, 28 for a liver and 1 for a pancreas (in combination with a kidney) transplant.

Status of the national waiting list on 31.12.2020 (all patients)

Kidney	Heart	Lung	Liver*	Pancreas**
115	53	5	32	4
TOTAL				204 patients

* 2 in combination with a kidney ** 4 in combination with a kidney

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

Status of the national waiting list in the 2011-2020 period (on 31.12., all patients)

Year	Kidney	Heart	Lung*	Liver	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	5	32	4	204

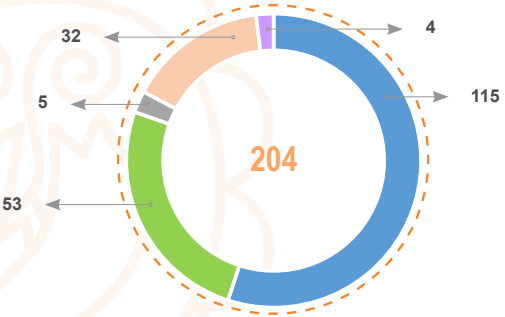
* Before 2020, Slovene patients, waiting for a lung transplant, were included on Austrian waiting list

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

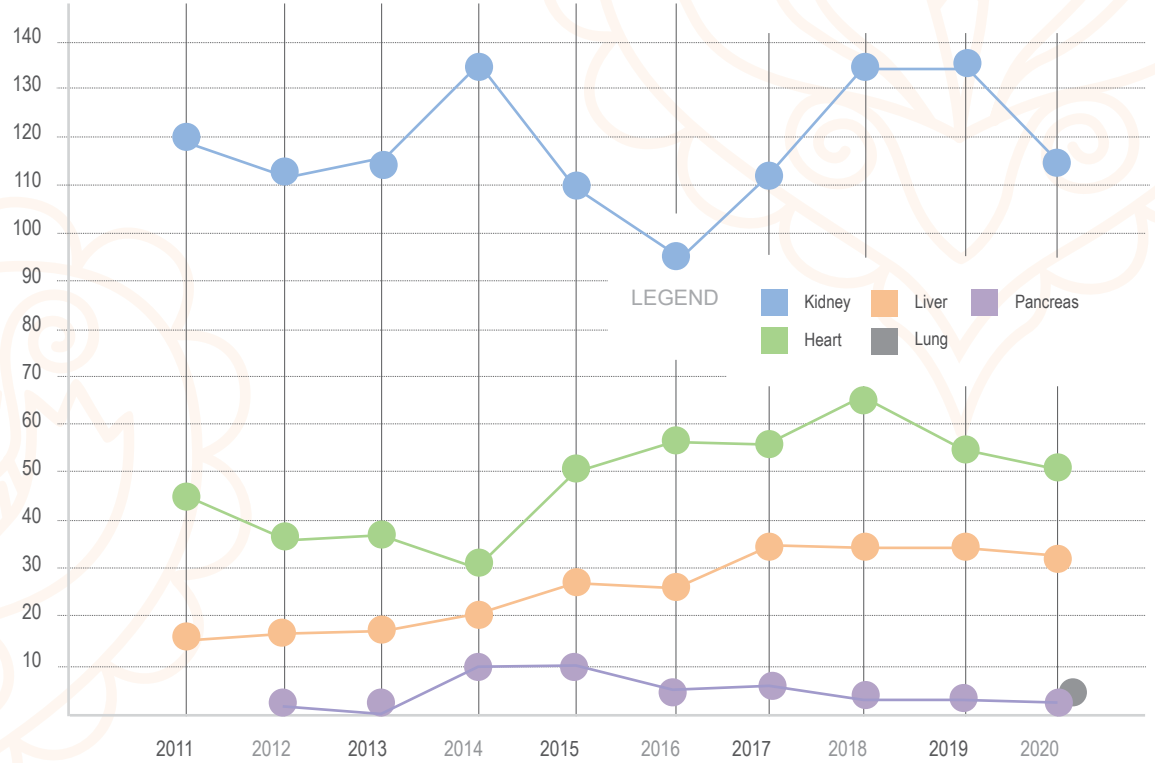
A share of patients on the national waiting list according to organ in 2020

LEGEND

Kidney (115)
Lung (5)
Heart (53)
Liver (32)
Pancreas (4)



Trends in patient numbers on the waiting list, by organ and the total for the 2011-2020 period

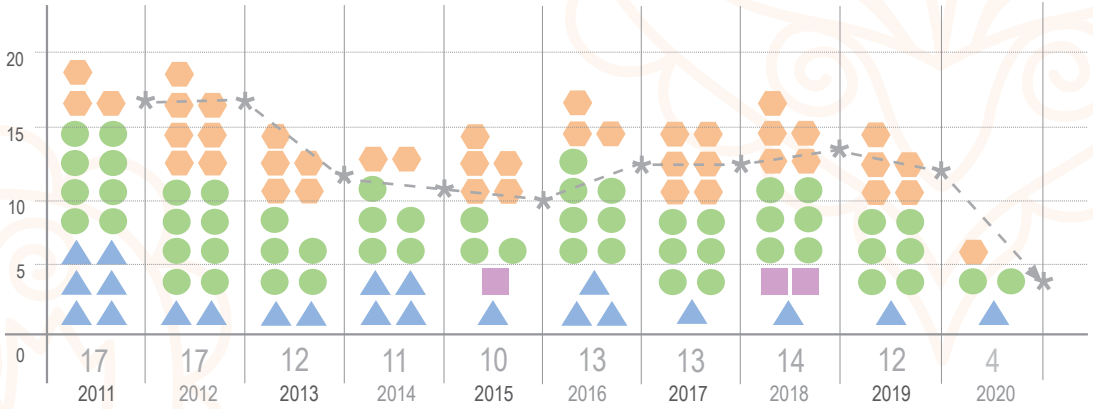


Waiting list mortality 2011-2020

Year	Kidney	Kidney and pancreas	Heart	Lung	Liver	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

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

Trends in waiting list mortality 2011-2020



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

LEGEND

Kidney

Liver

Kidney and pancreas

Heart

Trends

NUMBER OF DECEASED DONORS

In 2020, Slovenian donor hospitals acquired 47 actual deceased donors who were medically suitable and for whom consent had been obtained from their relatives. Data at the beginning show the number of actual deceased donors in Slovenia compared to other countries around the world. Below are details on the number of utilised deceased donors, which means that at least one organ was transplanted from each donor. Compared to other Eurotransplant members, in 2020 Slovenia was again ranked fourth in terms of the number of utilised deceased donors per million people.

Number of actual deceased donors (DD) per million people (PMP) in Slovenia in 2020 and a comparison with other countries

Country	No. of DD/PMP 2020
1. USA	38,35
2. Spain	37,4
3. Portugal*	33,8
4. Czech Republic	27,14
5. Belarus*	26,2
6. Malta*	25
7. United Kingdom*	24,88
8. Estonia	24,83
9. Austria	23,9
10. Croatia	23,7

Country	No. of DD/PMP 2020
11. France**	22,4
12. Slovenia	22,25
13. Finland**	21,9
14. *Canada**	21,87
15. Belgium**	21,12
16. Italy**	20,5
17. Denmark**	20,4
18. Uruguay	19,2
19. Norway**	18,8
20. Australia**	18,53

Country	No. of DD/PMP 2020
21. Switzerland*	18,4
22. Slovakia*	17,96
23. Lithuania	17,5
24. Sweden**	16,8
25. Netherlands**	16,67
26. Brazil**	15,5
27. New Zealand*	15
28. Iran*	14,34
29. Ireland*	12,8
30. Cuba*	12

* Data from 2019 ** Total utilized donors

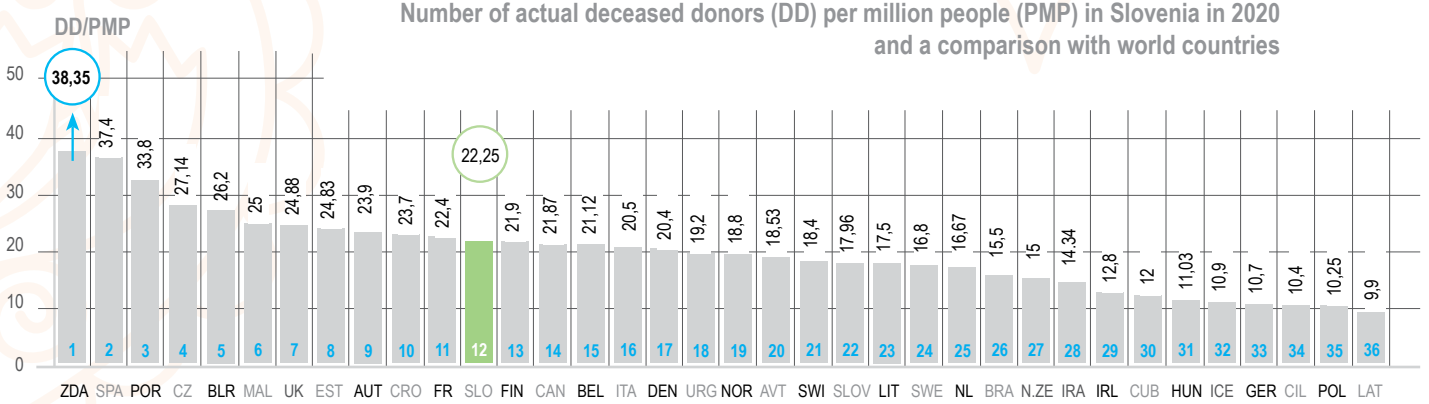
Country	No. of DD/PMP 2020
31. Hungary**	11,3
32. Iceland**	10,9
33. Germany**	10,77
34. Chile*	10,4
35. Poland	10,27
36. Latvia*	9,9
37. Argentina	9,78

Country	No. of DD/PMP 2020
38. Israel	9,2
39. South Korea*	8,68
40. Columbia*	8,4
41. Equador*	7,78
42. Turkey*	7,54
43. Cyprus*	6,86
44. Costa Rica*	6,66

Country	No. of DD/PMP 2020
45. Greece*	5,5
46. Russia*	5,14
47. Luxembourg**	5
48. Mexico*	4,45
49. Romania*	4,39
50. Panama*	4,29
51. China*	4,16

* Data from 2019 ** Total utilized donors

Number of actual deceased donors (DD) per million people (PMP) in Slovenia in 2020 and a comparison with world countries



Country	No. of DD/PMP 2020
52. Moldova*	4,1
53. Bulgaria	4
54. Hong Kong*	3,86
55. Kuwait	3,5
56. Qatar*	2,96
57. Peru*	2,28
58. Saudi Arabia	1,9

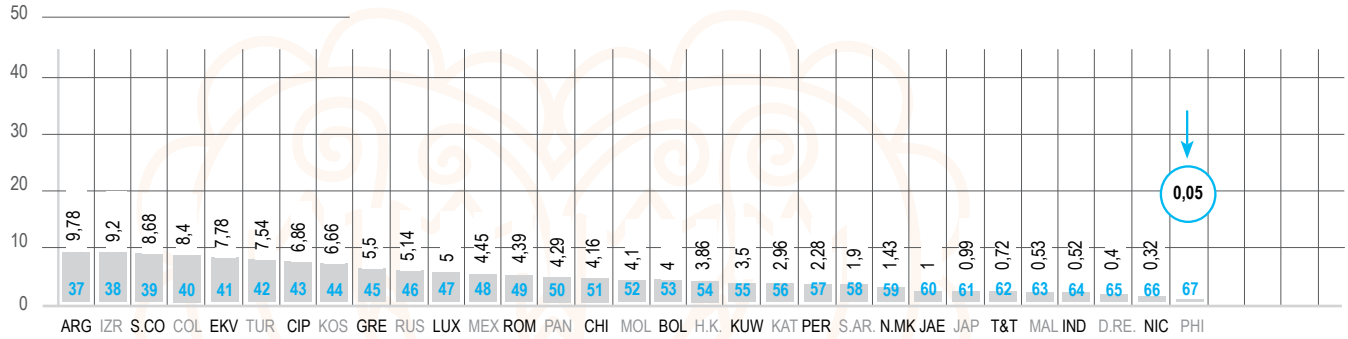
Country	No. of DD/PMP 2020
59. Northern Macedonia*	1,43
60. UAE	1
61. Japan*	0,99
62. Trinidad and Tobago *	0,72
63. Malaysia*	0,53
64. India*	0,52
65. Dominican Republic	0,4

Country	No. of DD/PMP 2020
66. Nicaragua*	0,32
67. Philippines	0,05

* Data from 2019 ** Total utilized donors

Source: Preliminary numbers 2020
IRODaT (International Registry in Organ Donation and Transplantation), www.irodat.org,

DD/PMP

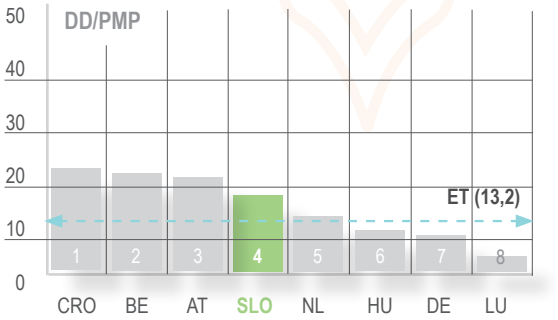


Number of utilised deceased donors (DD) per million people (PMP) in Slovenia in 2020 and a comparison with all Eurotransplant countries

Country	Slovenia	Eurotransplant
Number of DD	39	1.837
DD/PMP	18.5	13.2

Number of utilised deceased donors per million people (DD/PMP) and a comparison with other Eurotransplant countries in 2020

ET Country	Number of DD/PMP in 2020
1.Croatia (CRO)	23,9
2. Belgium(BE)	21,2
3. Avstria (AT)	21,1
4. Slovenia (SLO)	18,5
5. Netherlands (NL)	14,4
6. Hungary (HU)	11,0
7. Germany (DE)	10,7
8. Luxembourg (LU)	4,8



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

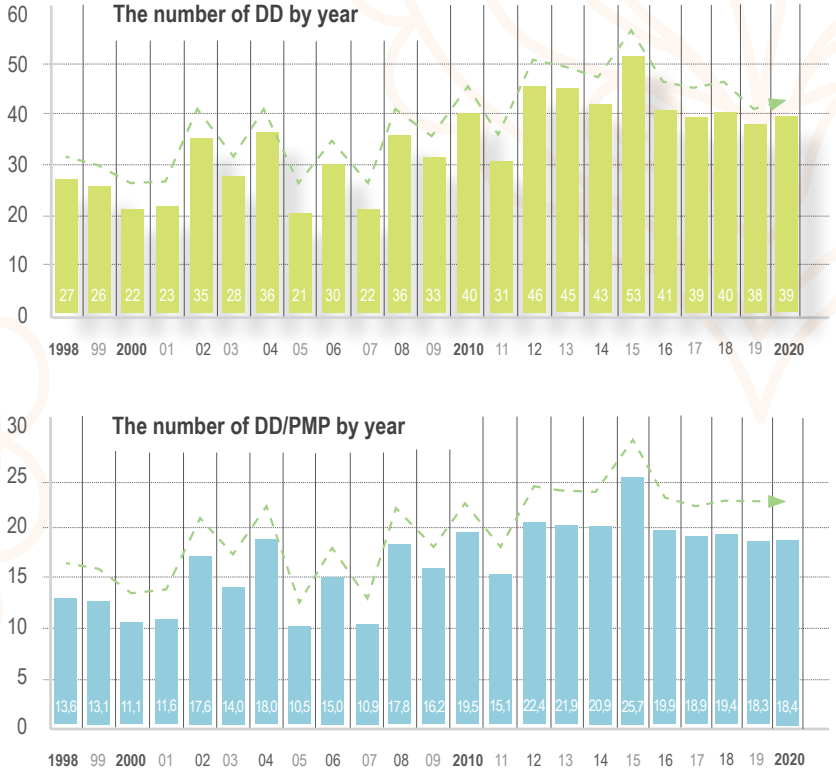
Number of utilised deceased donors (DD) and number of utilised deceased donors per million people (DD/PMP) in Slovenia in the 1998-2020 period

Year	Number of DD	Number of DD/PMP
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

Year	Number of DD	Number of DD/PMP
2011	31	15,1
2012	46	22,4
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
TOTAL	794	17,0

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 1998–2020 period



The critical Pathway for Organ Donation

POSSIBLE DECEASED ORGAN DONOR
A patient with a devastating brain injury or lesion OR a patient with circulatory failure AND apparently medically suitable for organ donation

Donation after Circulatory Death (DCD)	Treating physician to Identify/refer a potential donor	Donation after BrainDeath (DBD)
POTENTIAL DCD DONOR **a.** A person whose circulatory and respiratory functions have ceased and resuscitative measures are not to be attempted or continued. OR **b.** A person in whom the cessation of circulatory and respiratory functions is anticipated to occur within a time frame that will enable organ recovery.	**Reasons why a potential donor does not become a utilized donor** **SYSTEM** - Failure to identify/refer a potential or eligible donor - Brain death diagnosis not confirmed (e.g. does not fulfil criteria) or completed (e.g. lack of tehnical resources or clinician to make diagnosis or perform confirmatory tests) - Circulatory death not declared within the appropriate time frame - Logistical problems (e.g. no recovery team) - Lack of appropriate recipient (e.g. child, blood type, serology positive) **DONOR/ORGAN** - Medical unsuitability (e.g. serology positive, neoplasia) - Haemodynamic instability/unanticipated cardiac arrest - Anatomical, histological and/or functional abnormalities of organs - Organs damaged during recovery - Inadequate perfusion of organs or thrombosis **PERMISSION** - Expressed intent of deceased not to be donor - Relative's refusal of permission for organ donation - Refusal by coroner or other judical officer to allow donation for forensic reasons	POTENTIAL DBD DONOR A person whose clinical condition is suspected to fulfill brain death criteria.
ELIGIBLE DCD DONOR 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 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 A consented eligible donor: **a.** In whom an operative incision was made with the intent of organ recovery for the purpose of transplantation. OR **b.** From whom at least one organ was recovered for the purpose of transplantation.		ACTUAL DBD DONOR A consented eligible donor: **a.**In whom an operative incision was made with the intent of organ recovery for the prupose of transplantation. OR **b.** From whom at least one organ was recovered for the purpose of transplantation.
UTILIZED DCD DONOR An actual donor from whom at least one organ was transplanted.		UTILIZED DBD DONOR 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 couse a donor´s death.

Source: The Madrid Resolution on Organ Donation and Transplantation

REGISTER FOR DONATION DECLARATIONS

Every Slovenian citizen has the right and possibility during their lifetime to decide to donate their organs and tissues. This decision is formally confirmed when it is entered in the national register of designated persons, set up back in 2004. The donor statement may be signed at many authorised donor registration points around Slovenia (a detailed list is published at www.slovenija-transplant.si) or electronically using a digital signature on the eAdministration ("eUprava") portal (https://e-uprava.gov.si/). Since June 2017, a declaration against making organ donation is also possible.

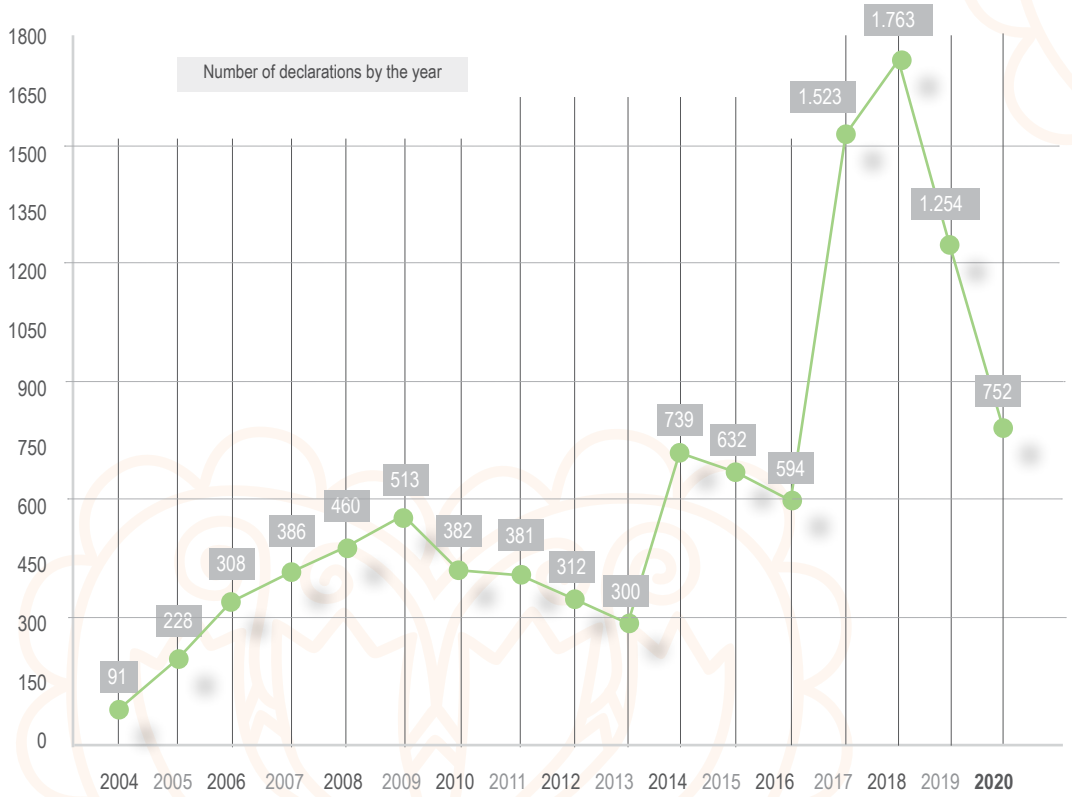
Compared to previous years, fewer people have made a declaration in the national register of designated persons due to Covid-19 epidemic, despite the possibility of making the declaration electronically. In 2020, we collected a total of 752 declarations (746 FOR and 6 AGAINST). As at 31.12.2020, 10.618 declarations were found on the register (10,598 FOR and 20 AGAINST). Since 2018, when electronic declaration was made possible, 1785 persons used this option. Yearly aproximately 40 % of declarations are submitted ellectronicaly, rising to 61 % in 2020 due to covid-19 situation.

Number of declarations in the register, by year, in the 2004–2019 period

Source: archive of Slovenija-transplant

Year	No. of declarations	Year	No. of declarations	Year	No. of declarations
2004	91	2010	382	2016	594
2005	228	2011	381	2017	1.523
2006	308	2012	312	2018	1.763
2007	386	2013	300	2019	1.254
2008	460	2014	739	2020	752
2009	513	2015	632	TOTAL	10.618

Number of declarations regarding donation in the register, by year, in the 2004–2020 period



PERCENTAGE OF CONSENT FOR DONATION

A conversation about donation with the close relatives of a potential deceased donor is conducted in every case when the donation of organs for transplantation is feasible. It is only after the death has been confirmed and the time of death registered that the transplantation co-ordinator checks the register to see whether the deceased was a designated after-death donor. Despite knowing about the designation, the central transplantation co-ordinator always holds a conversation with the deceased person's close relatives about donation. During this conversation, they try to find out what the deceased person's position was regarding after-death organ donation.

If their intention is unknown, the close relatives make the decision. All procedures are carried out with a high level of sensitivity, understanding of the extremely difficult emotional circumstances and in line with the legislative provisions and the medical doctrine. In 2020 donation was refused by 24 % of relatives.

As the death of a close relative is a difficult experience for anyone, Slovenija-transplant offers the donor's relatives an opportunity to be given grief counselling by a professionally trained and experienced experts.

Percentage of consent for donation in the 1998-2020 period

Source: archive of Slovenija-transplant

Year	%
1998	79
1999	70
2000	63
2001	64

Year	%
2002	78
2003	77
2004	70
2005	81

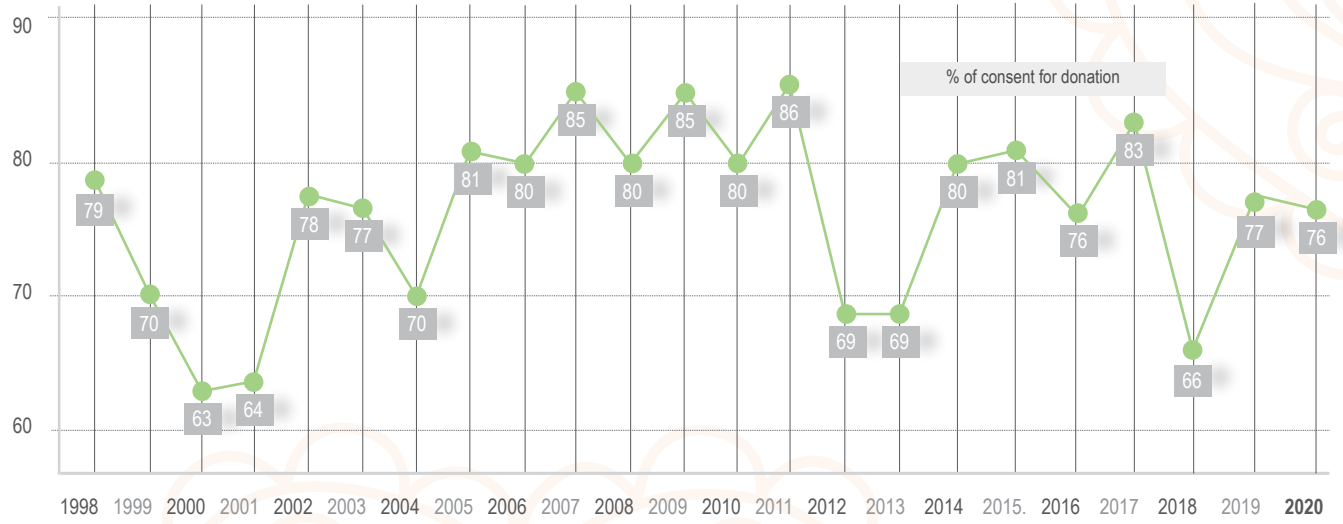
Year	%
2006	80
2007	85
2008	80
2009	85

Year	%
2010	80
2011	86
2012	69
2013	69

Year	%
2014	80
2015	81
2016	76
2017	83

Year	%
2018	66
2019	77
2020	76

Percentage of consent for donation in the 1998–2020 period



OPERATIONS OF THE DONOR CENTRES

Eleven donor hospitals or centres 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:

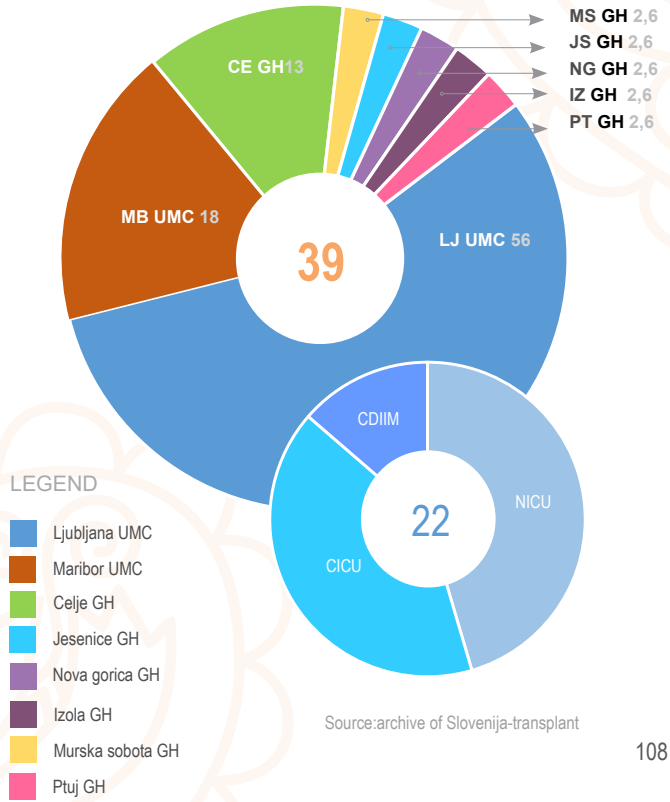
- identifying potential deceased donors;
- performing diagnostics of brain death;
- establishing the suitability of organs and tissues for removal and transplantation;
- informing the deceased person's close relatives about the possibility of organ donation and obtaining their consent;
- preserving the functioning of deceased donors' organs – in intensive care and during organ removal; and
- participating in organ- and tissue-removal procedures performed by Slovenian and foreign teams of surgeons.

The highest number of donors is provided by the Ljubljana UMC with the greatest number of beds in intensive care units. In 2020, 22 utilised deceased donors were procured there. Good results were also achieved by the UMC Maribor where in 2020 they procured 7 utilised deceased donors and by Celje GH with 5 utilised donors. Izola GH, Nova Gorica GH, Murska Sobota GH, Jesenice GH and Ptuj GH each procured one utilised deceased donor in 2020.

Number and share of utilised deceased donors in individual donor centres (DC) in 2020

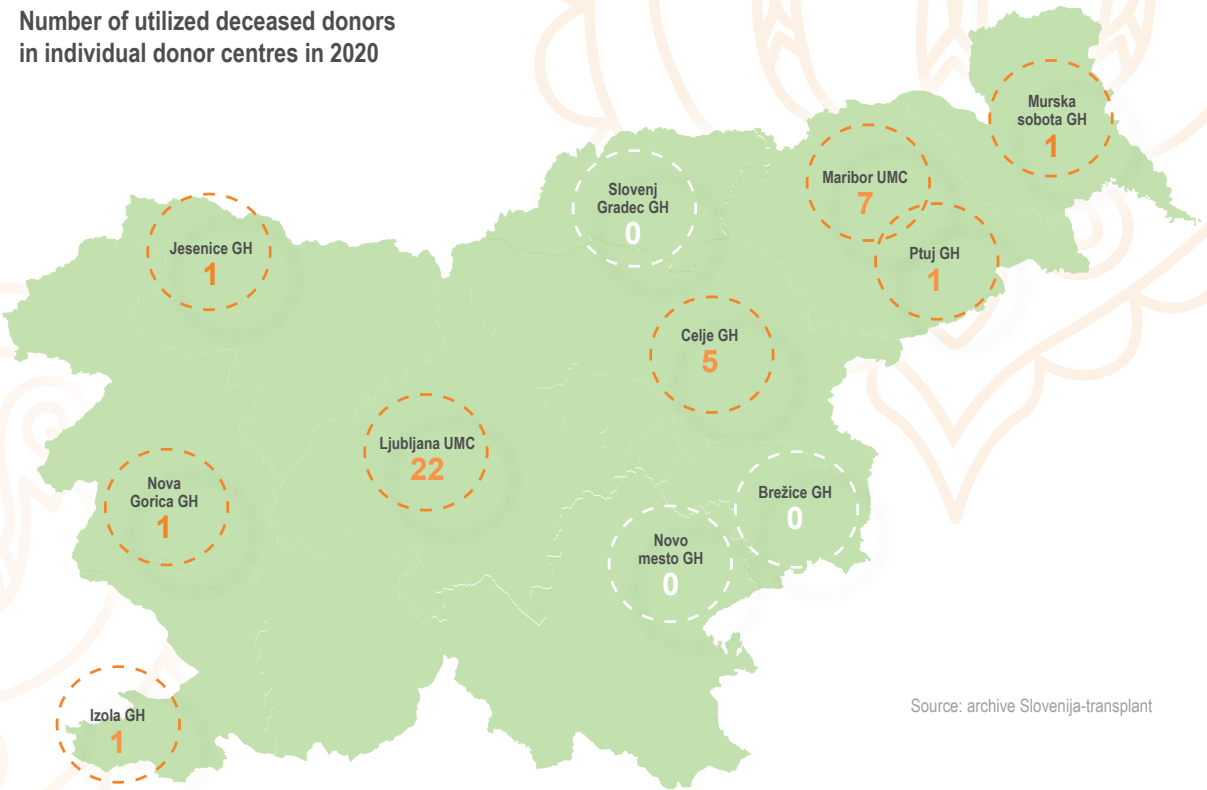
Donor centre	Number of DD	Share in %
Ljubljana UMC TOTAL	22	56
of which NICU*	10	
of which CICU**	9	
of which CDIIM***	3	
Maribor UMC	7	18
Celje GH	5	13
Jesenice GH	1	2,6
Nova Gorica GH	1	2,6
Izola GH	1	2,6
Murska Sobota GH	1	2,6
Ptuj GH	1	2,6
TOTAL	39	100

* NICU – Neurological Intensive Care Unit,
** CICU – Central Intensive Care Unit,
*** CDIIM – Clinical Department of Internal Intensive Medicine.



Source:archive of Slovenija-transplant

Number of utilized deceased donors in individual donor centres in 2020



Source: archive Slovenija-transplant

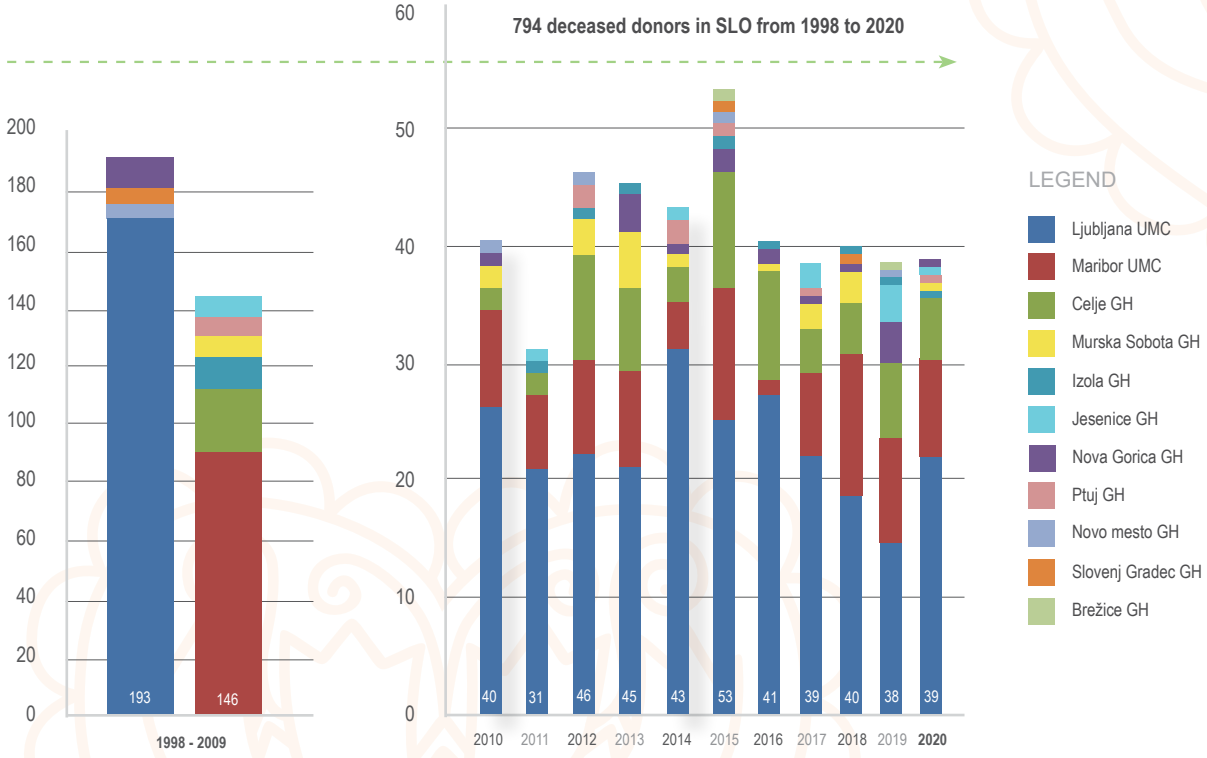
8TH INTENSIVE COURSE
IN TRANSPLANT COORDINATION,
LOGARSKA DOLINA, JANUARY 2020
FOTO: JANA ŠIMENC

Number of utilised deceased donors in donor centres in the 1998–2020 period

Year	LJ UMC	MB UMC	CE GH	MS GH	NG GH	Izola GH	Ptuj GH	Jesenice GH	NM GH	SG GH	Brežice GH
1998-2009	176	95	22	7	10	9	7	6	3	4	
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			
2015	25	11	10		2	1	1		1	1	1
2016	28	2	7	1	2	1					
2017	22	7	4	2	1		1	2			
2018	18	13	4	2	1	1				1	
2019	15	8	6		3	1		3	1		1
2020	22	7	5	1	1	1	1	1			
TOTAL	427	177	81	24	25	17	14	14	7	6	2

Source: archive Slovenija-transplant

Number of utilized deceased donors in donor centres in the 1998–2020 period



Potential and realisation in donor hospitals (analysis completed for 2020)

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.

Source: archive Slovenija-transplant

Donor hospital	All deaths in the ICU	PD	ED	*Potential (%)	Available (%)	AD	Realisation (%)	**Available (%)
Ljubljana UMC	407	61	45	11.1	13.7	24	53	65
Maribor UMC	236	25	11	4.7	13.7	7	64	65
Novo mesto GH	99	3	0	0	8.3	0	/	55
Celje GH	180	18	12	6.7	8.3	7	58	55
Nova Gorica GH	72	7	1	1.3	8.3	1	100	55
Ptuj GH	48	3	2	4.2	8.3	1	50	55
Murska Sobota GH	96	7	5	5.2	8.3	3	80	55
Izola GH	76	3	1	1.3	8.3	1	100	55
Slovenj Gradec GH	78	0	0	0	8.3	0	/	55
Jesenice GH	48	2	2	4.2	8.3	2	100	55
Brežice GH	29	2	1	3.4	8.3	1	100	55

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). The Ljubljana UMC was quite close to its potential, whereas the Maribor UMC lagged behind its potential in 2020 due to Covid-19 epidemic which severely affected all their ICU Units. In hospitals without their own neurosurgical unit, the available donation potential reaches up to 8.3%. This figure was closely approached by the Celje GH, while Murska Sobota GH was relatively close. Most donor hospitals still lagged behind the available values in 2020, which shows we can further improve in the area of identifying eligible donors. However, all smaller hospitals were severely affected by Covid-19 epidemic as well since most of their ICU units were transformed into Covid-19 intensive care units..

**Realisation mainly depends on the percentage share of absolute medical contraindications and refused donation by relatives in the period under scrutiny. Available realisation considers up to 20% of absolute medical contraindications and up to 10% of refused donation by relatives, while also distinguishing between donor hospitals with a neurosurgical unit and those without one (10% difference); other obstacles in the donor process in total account for up to 5%. Thus, the available realisation for hospitals with a neurosurgical unit was calculated at 65% and for those without such a unit 55%. In 2020, the available realisation was exceeded in the Murska Sobota GH and Celje GH, while Maribor UMC was close. Some deviations were found in low values of the potential, e.g. in Izola GH, Nova Gorica GH and Brežice GH, where 100% realisation was achieved in one case – there were no medical contraindications for donation and the relatives gave their consent. In such cases a two-year balance is more accurate and in line with expected results. In hospitals where there were no proven brain deaths in 2020 and no actual donors, the potential and the realisation were both 0% or non-measurable (/).

List of authorised persons (i.e. hospital transplantation coordinators) in charge of the development, implementation and functioning of the donation programme in individual donor centres in 2020

Donor centre	Transplantation coordinators
Ljubljana UMC	Chief Phys. Rade Stanić, MD, MSc
Maribor UMC	Tanja Kuprivec, MD
Brežice GH	Nataša Pirc, MD
Celje GH	Barbara Hudournik, MD
Izola GH	Damjan Polh, MD
Jesenice GH	Andraž Nastran, MD
Murska Sobota GH	Chief Phys. Daniel Grabar, MD
Nova gorica GH	Edyta Čerkini, MD
Novo mesto GH	Matej Godnič, MD
Ptuj GH	Chief Phys. Majda Šarman, MD (until February)/Mateja Prevolšek, MD (from March)
Slovenj Gradec GH	Rok Popič, MD

CELEBRATION OF EUROPEAN DONATION DAY,
UMC LJUBLJANA, OCTOBER 2020
FOTO: JANA ŠIMENC

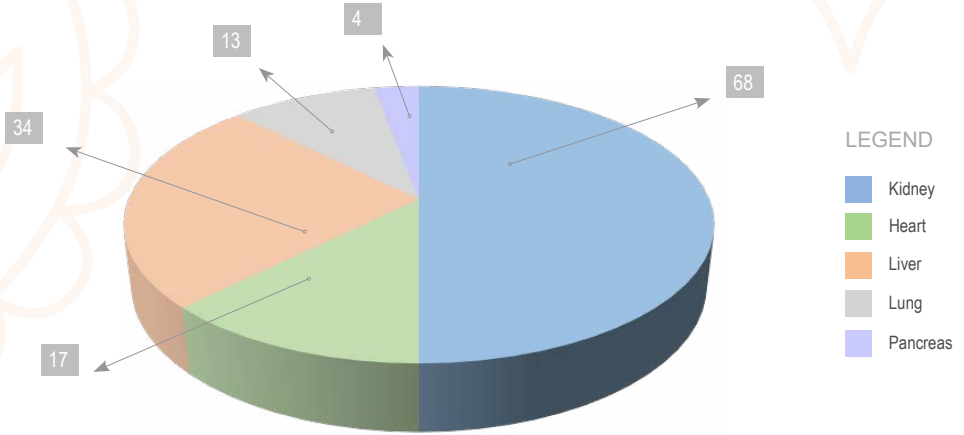
PROCURED SOLID ORGANS FOR THE PURPOSE OF MEDICAL TREATMENT

The number of procured organs depends on the number of procured deceased donors, along with the age and any medical contraindications. Despite Covid-19 epidemic the number of procured organs from deceased donors was slightly higher in 2020 than the year before. Data for 2020 and a comparison with previous years are given below.

Number of procured organs of Slovenian deceased donors in 2020

Kidney	Heart	Liver	Lung (both lobes)	Pancreas	TOTAL
68	17	34	13	4	136

Source: archive of Slovenija-transplant

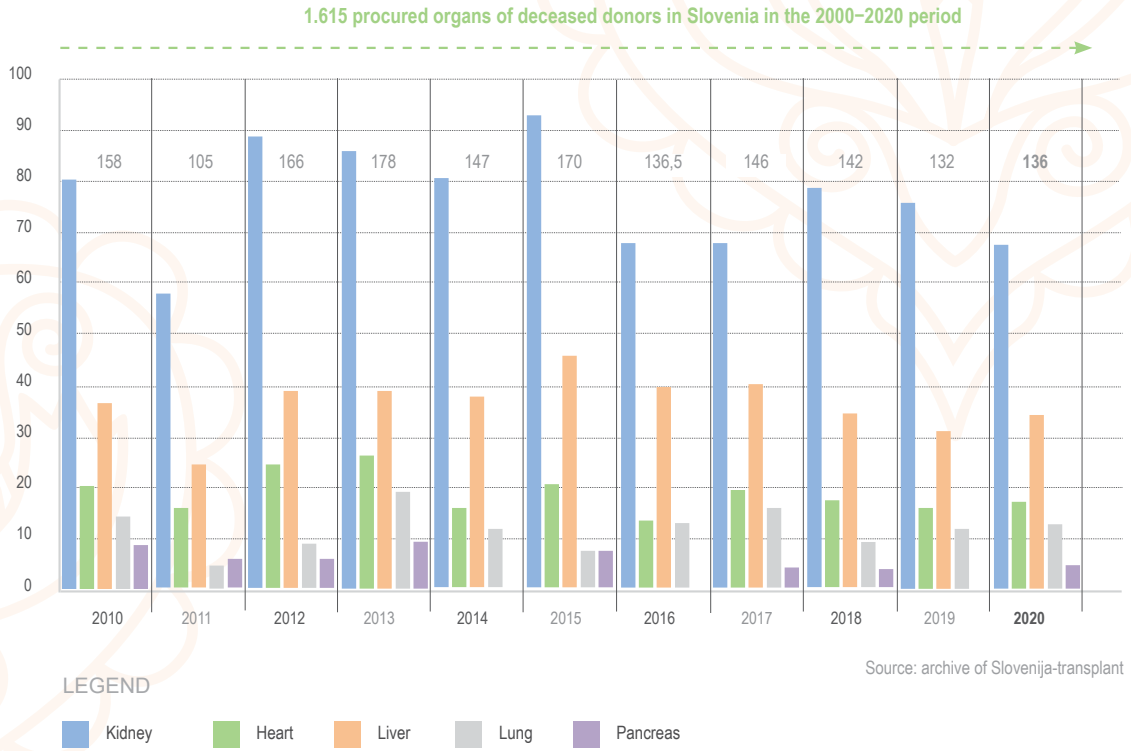


Procured organs of deceased donors in Slovenia in the 2000–2020 period

Year	Kidney	Heart	Liver	Lung (both lobes)	Pancreas	TOTAL
2000-2009	559	149	217	70,5	76	1.071,5
2010	80	20	37	13	8	158
2011	58	14	24	4	5	105
2012	89	25	39	8	5	166
2013	86	26	39	19	8	178
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	/	132
2020	68	17	34	13	4	136
TOTAL	1.402	351	618	193	123	2.687

Source: archive of Slovenija-transplant

Procured organs of deceased donors in Slovenia in the 2010–2020 period



Source: archive of Slovenija-transplant

TRANSPLANTED SOLID ORGANS

There is one transplantation centre in Slovenia – the Ljubljana University Medical Center – 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 managed by the cardiovascular surgeon Dr. Ivan Knežević, MD.

In 2020, 114 organs were transplanted, 113 from deceased donors and one from the living donor. The most transplanted organ is the kidneys and we slightly exceed the average of Eurotransplant countries in terms of the number of all transplants from deceased donors per million people. Considerably higher is the number of transplanted hearts per million people, where in the past few years we have been a world leader.

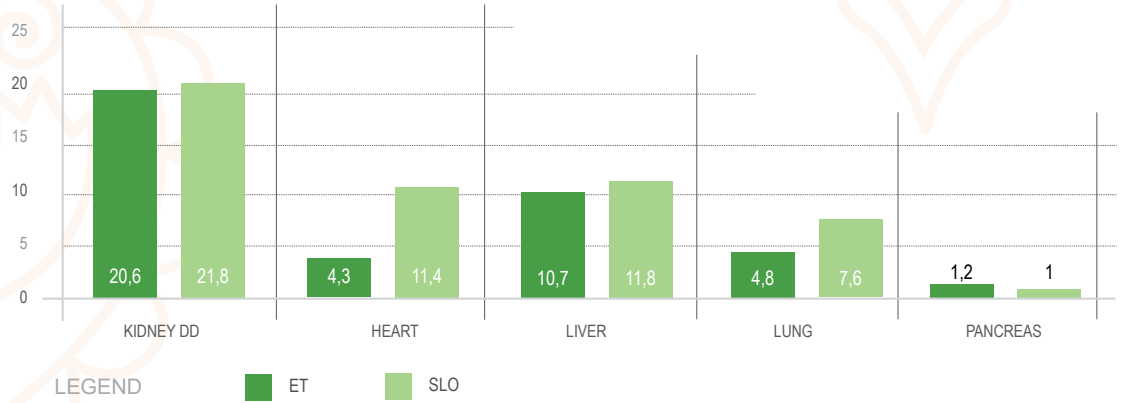
The Slovenian lung transplantation program became completely independent in 2020, and sixteen lung transplants for Slovenian patients were performed at the Ljubljana University Medical Center. First paediatric lung transplantation was performed and a 34-year-old patient needed urgent lung transplantation due to complications after Covid-19 disease.

Paediatric transplantations are partly performed in the Ljubljana UMC and partly in nearby European transplantation centres (kidneys in Graz and Hannover, and liver in Bergamo and Hamburg). The relevant departments in the Ljubljana UMC are in charge of treatment and preparation before organ transplantation as well as medical treatment and monitoring of the patient after transplantation.

Transplanted solid organs from deceased donors in the Ljubljana UMC in 2020 and a comparison with Eurotransplant – absolute number and per million people (PMP)

	Kidney DD		Heart		Liver		Lung		Pancreas		TOTAL	
	No.	PMP	No.	PMP	No.	PMP	No.	PMP	No.	PMP	No.	PMP
SLO	46	21,8	24	11,4	25	11,8	16	7,6	2	1	113	53,5
ET	2.851	20,6	587	4,3	1.470	10,7	1.279	4,8	154	1,2	6.356	40,1

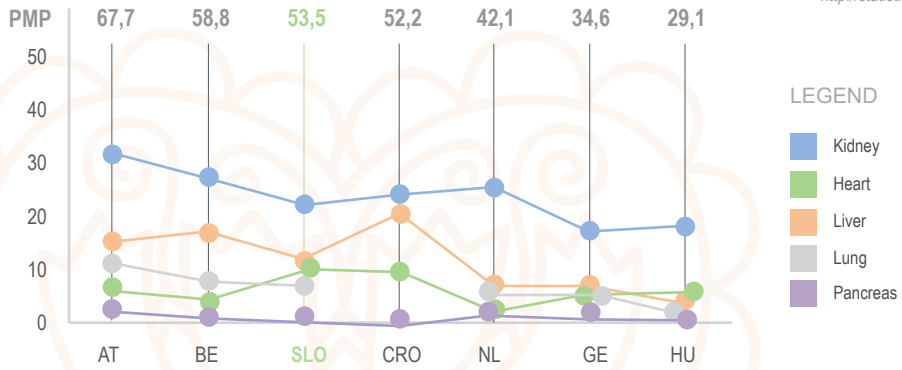
Source: archiv Slovenija-transplant and http://statistics.eurotransplant.org/



Number of transplanted solid organs from deceased donors per million people (PMP) in Slovenia in 2020 and a comparison with the Eurotransplant countries

ET country	Kidney	Liver	Heart	Lung	Pancreas	Number of transplantations/ PMP in 2020
1. Avstria (AT)	32,7	16,9	6,6	12,0	2,2	67,7
2. Belgium (BE)	28,2	18,5	4,7	8,1	1,2	58,8
3. Slovenia (SLO)	21,8	11,8	11,4	7,6	1,0	53,5
4. Croatia (CRO)	23,4	23,2	6,2	/	0,2	52,2
5. Netherlands (NL)	25,4	9,3	2,4	5,0	1,7	42,1
6. Germany (GE)	17,5	9,3	4,1	4,1	1,1	34,6
7. Hungary (HU)	17,6	5,1	4,6	1,7	0,6	29,1

Source: archive Slovenija-transplant and http://statistics.eurotransplant.org/



Number of transplanted solid organs from deceased donors in Slovenia in the 1970–2020 period

Year	Kidney	Heart	Liver	Lung*	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

Source: archive of Slovenija-transplant

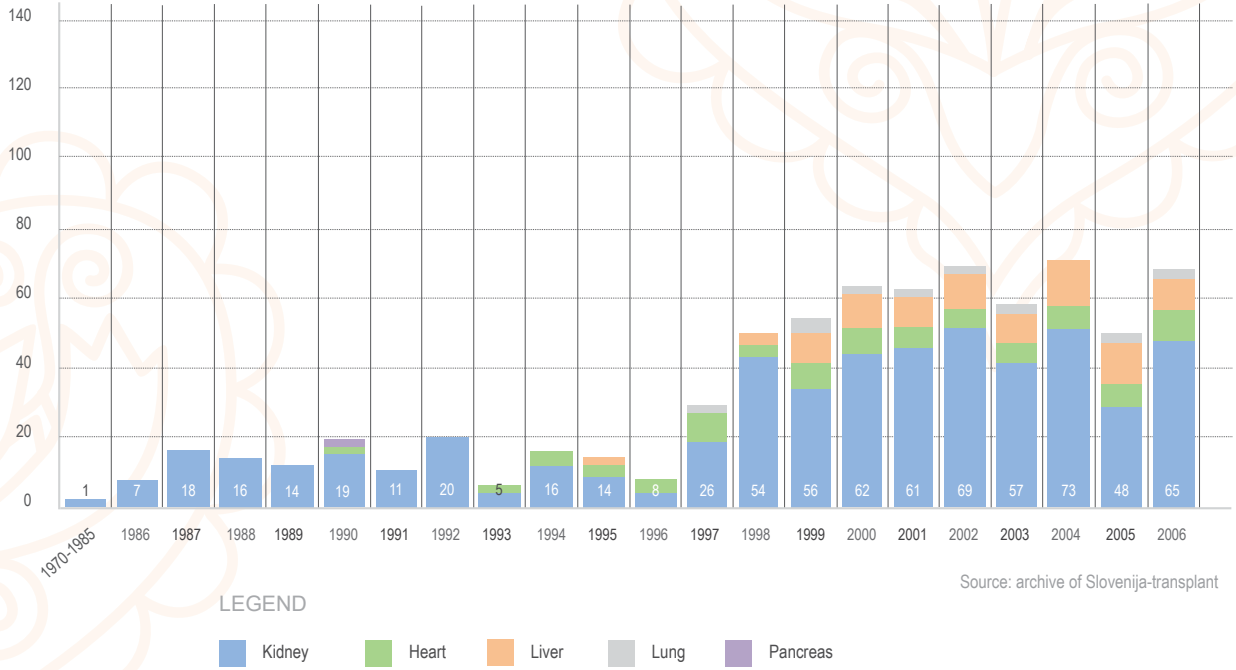
Year	Kidney	Heart	Liver	Lung*	Pancreas	TOTAL
2005	28	5	13	2		48
2006	48	8**	8	2		66
2007	30	11	10	1		52
2008	52	6	22	4		84
2009	43	18	18	2	2	83
2010	61	19	23	3	1	107
2011	46	14	20	7	1	88
2012	62	29***	27	2		120
2013	60	30	21	8	4	123
2014	55	33	31	3		122
2015	64	24	24	7	5	124
2016	44	31	27	10	5	117
2017	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
TOTAL	1.261	367	411	101	25	2.165

* 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, ten transplantations of both lung lobes were performed in the Ljubljana UMC and one paediatric lung transplantation in the University Hospital in Vienna (AKH).

** One heart from a Slovenian donor was transplanted to a Slovenian patient in Graz

*** One heart was transplanted, together with lungs, to a Slovenian patient in Vienna

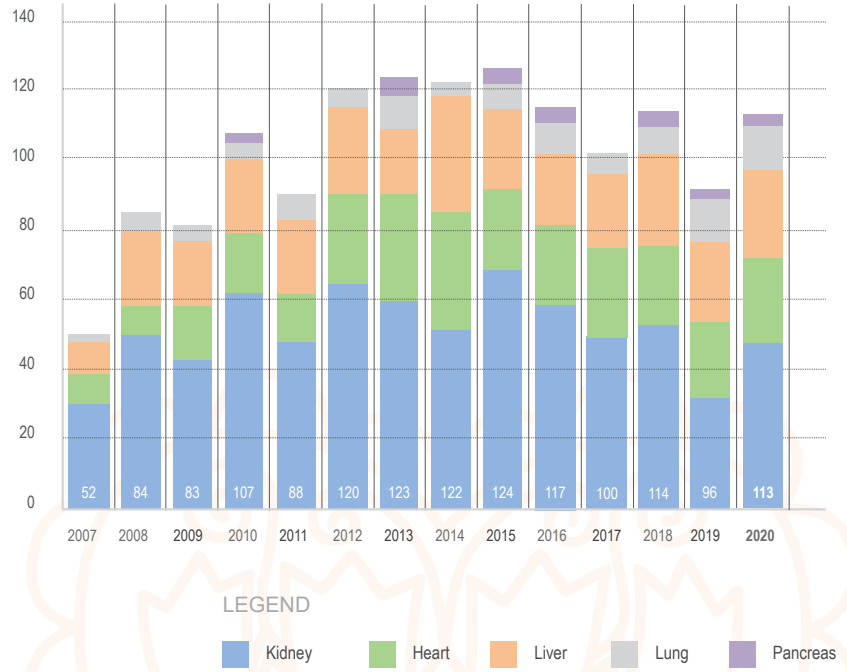
Number of transplanted solid organs of deceased donors in Slovenia in the 1970–2006 period



Source: archive of Slovenija-transplant

Number of transplanted solid organs of deceased donors in Slovenia in the 2007–2020 period

2.165 transplanted solid organs of deceased donors in SLO in the 1970–2020 period



Source: archive of Slovenija-transplant

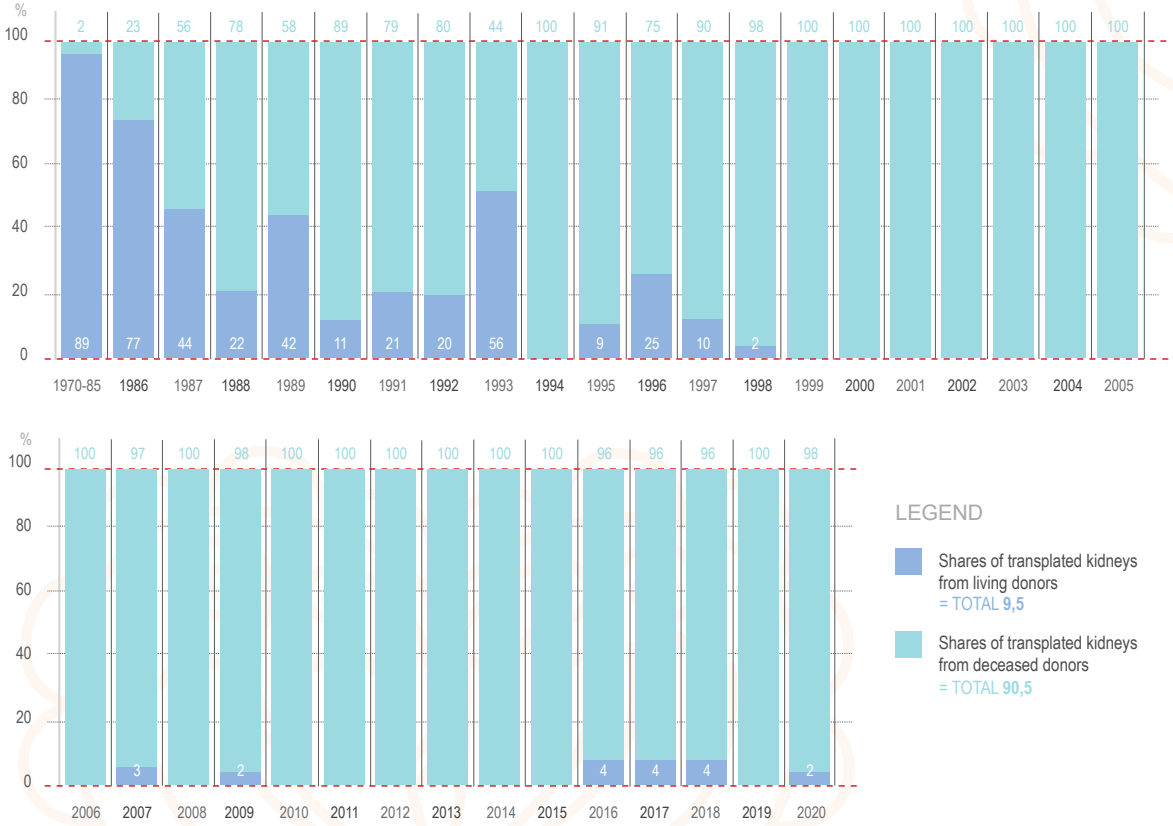
Number of kidneys from living donors transplanted in Slovenia

Currently, 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 beginning of the transplantation programme in Slovenia, since 1970, living kidney donation was predominant. From 1986 on, with the establishment of the national donor programme, most organs were retrieved from deceased donors. The living kidney donation programme slowly declined, but in 2016 it was revived. In 2016, 2017 and 2018, two kidneys were transplanted from living donors and one such transplant was performed in 2020.

Number of kidneys from living donors transplanted in Slovenia in the 1970-2020 period

Year	Nr.	Year	Nr.	Year	Nr.	Year	Nr.	Year	Nr.	Year	Nr.
1970-85	43	1991	3	1997	2	2003	0	2009	1	2015	0
1986	23	1992	5	1998	1	2004	0	2010	0	2016	2
1987	14	1993	5	1999	0	2005	0	2011	0	2017	2
1988	13	1994	0	2000	0	2006	0	2012	0	2018	2
1989	10	1995	1	2001	0	2007	1	2013	0	2019	0
1990	2	1996	2	2002	0	2008	0	2014	0	2020	1
TOTAL		133									

Shares of transplanted kidneys from living and deceased donors in the 1970 – 2020 period



THE RESULTS OF SLOVENIAN ORGAN TRANSPLANT PROGRAMMES

Patient survival after a heart transplant

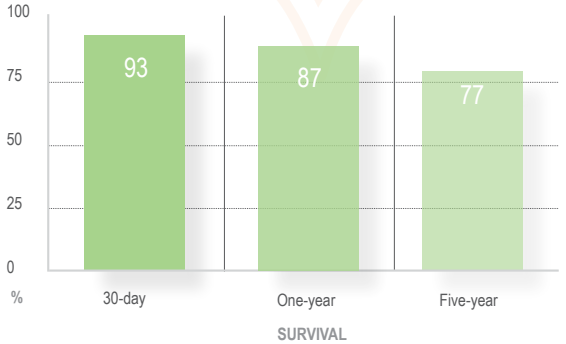
From 1990 to the end of 2020, the Ljubljana UMC performed 367 heart transplants, 24 out of those in 2020. Seventeen (71 %) patients had an urgent and 7 (29 %) an elective transplant. According to Eurotransplant data, the Ljubljana UMC was again ranked in the top 10 (out of 42) largest heart transplant centres in the Eurotransplant area and may be compared by number of transplantations with the biggest centres in Germany, Belgium, Hungary and Austria.

The multi-year average (2009–2020) waiting period for an elective heart transplant was 239 days and for an urgent heart transplant 56 days. In 2020, the average waiting period for an elective heart transplant was 295 days and for an urgent heart transplant 38 days.

Of all patients with a heart transplant in 2020, 38 % needed the procedure due to dilated cardiomyopathy and 25 % due to ischemic heart disease. Other reasons for the transplant include valvular heart disease (21 %), non-compaction cardiomyopathy (8 %), cardiac amyloidosis (4 %) and congenital heart defects (4 %). 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 % (1990–2020, n = 367)

30-day survival	One-year survival	Five-year survival
93 %	85 %	77 %



Source: Report on implementation of the programme for advanced heart failure and heart transplantation for 2020 (Cardiology Department, Ljubljana University Medical Centre)

Patient survival after a kidney transplant

In the period in which Slovenija-transplant has been a member of Eurotransplant (1 January 2000–31 December 2020), 1030 kidneys of living (9) and deceased donors (1021) have been transplanted. Some recipients had a kidney transplanted in combination with other organs: 24 with pancreas, three with heart and two with liver.
In the first post-transplantation year the clinical, biopsy-proven acute rejection of the transplant was reported in 12.8% of all patients.

In the 2010–2019 period, the median time until transplantation was 300 days. In 2020 the median time until transplantation was 440 days.

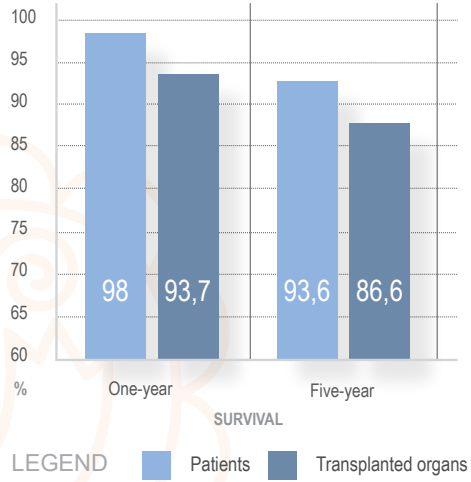
According to Eurotransplant data for the 2001 – 2015 period, the current 1-year and 5-year survival of Slovenian patients and grafts is above the Eurotransplant members' average and comparable with the most developed centres around the world.

Source: Quality indicators of the Kidney Transplantation Centre (Department of Nephrology, University Medical Centre Ljubljana)

Survival of kidney transplant recipients and transplanted organs in % (2000–2020, n = 1030)

One-year survival	Five-year survival
Patients	
98 %	93,6 %
Transplanted organs	
93,7% / 94,8*	86,6 % / 90,3*

* Censored for patient death



Patient survival after a liver transplant

Between 1995 and 31. 12. 2020, the University Medical Centre Ljubljana carried out 411 liver transplants. Of all patients with a liver transplant, 63 % needed the procedure due to cirrhosis of the liver, 10 % acute liver failure, 9.7 % liver cancer, 9.3 % cholestatic/congenital diseases, and 2.1 % due to metabolic liver disease. Other reasons for the transplant (5.9 %) include benign liver tumour or polycystic liver disease and Budd-Chiari syndrome.

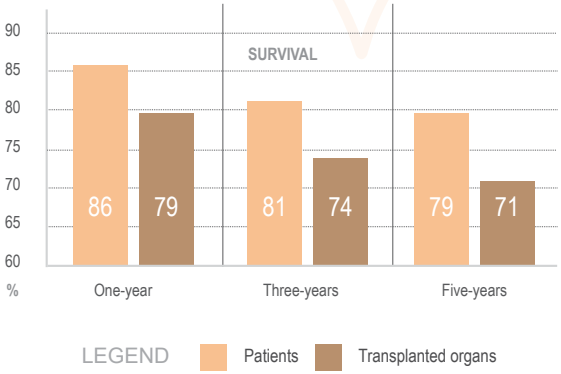
The average waiting period for a liver transplant in 2020 was about 290 days (median: 124 days). Average waiting period including high urgency cases was 268 days (median 105 days). (source: Clinical Department of Gastroenterology, University Medical Centre Ljubljana).

Source: ELTR (European Liver Transplant Registry, SLLUBL: Specific Analyses June 2019)

Survival of liver transplant recipients and transplanted organs in % (1988–2019*, n = 291 (patients) and n = 323 (transplanted organs))*

One-year survival	Three-year survival	Five-year survival
Patients		
86 %	81 %	79 %
Transplanted organs		
79 %	74 %	71 %

* Data for 2020 will be available in mid 2021; published here are data from 1988 to June 2019



Patient survival after a pancreas transplant (in combination with kidney)

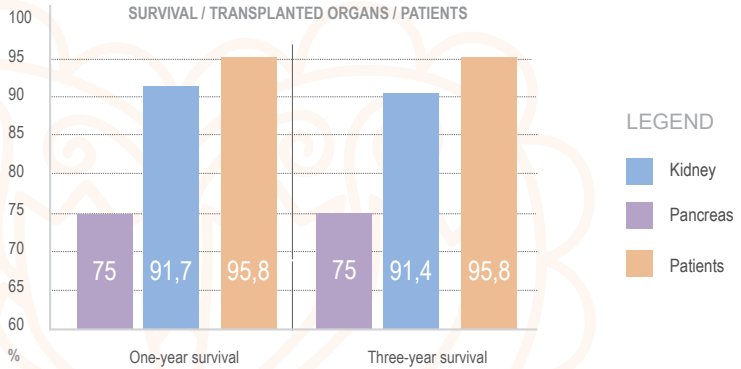
In the period from February 2009 to 31 December 2020, 24 pancreas transplants were carried out, all concurrently with kidney. In 2020, two combined pancreas and kidney transplantation were performed.

After one year, 18 pancreases were functioning, whereas 5 were removed in the early post-transplant period. One recipient died in the early post-transplant period due to infection. On 31 December 2020 there were 16 patients with functioning pancreas and kidney.

Survival of combined pancreas-kidney transplant recipients and transplanted organs in % (1988–2020, n=24 (patients) in n=19 (transplanted organs))

One-year survival		Three-year survival	
Patients			
95,8 %		95,8 %	
Transplanted organs			
Pancreas	Kidney	Pancreas	Kidney
75 %	91,7 %	75 %	91,4 %

Source: Associate Professor Dr. Damjan Kovač, DMS (Department of Nephrology, UMC Ljubljana)



Patient survival after a lung transplant

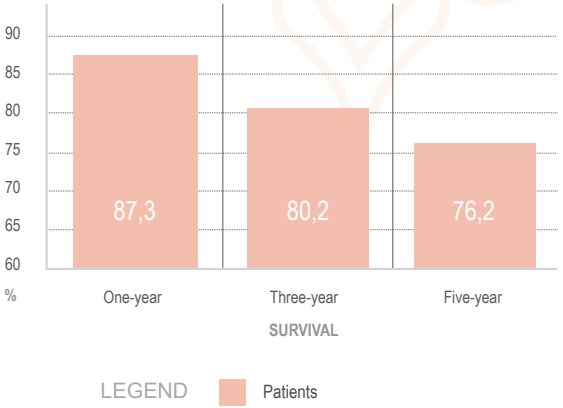
In the 1997–2020 period, 85 lung transplants were performed on Slovenian patients, one of whom had to undergo a re-transplant. In 2020 16 lung transplantations were performed in UMC Ljubljana, of which 14 were of both lung lobes and two of a single lung lobe. Five transplantations were urgent, including a patient, who needed urgent lung transplantation due to complications after covid-19 disease

Most common indications for lung transplantation (since the beginning of the lung transplantation programme for Slovene patients in Vienna and from 2018 in Ljubljana) were cystic fibrosis (27 %), chronic obstructive pulmonary disease (26 %), pulmonary fibrosis (26 %) and pulmonary hypertension. Indications for lung transplantations performed in Ljubljana UMC from 2018-2020 were chronic obstructive pulmonary disease (36 %), pulmonary fibrosis (26 %), cystic fibrosis (18 %) and bronchiectasis (7 %).

Survival of lung transplant recipients in % (1997–2020, n=101)

One-year survival	Three-year survival	Five-year survival
Patients		
87,3 %	80,2 %	76,2 %

Source: doc. dr. Matevž Harlander, MD
(Department of Pulmology and Alergology, University Medical Centre Ljubljana)



Tissues and cells

TRANSPLANTATION OF HAEMATOPOIETIC STEM CELLS

The transplantation of haematopoietic stem cells (HSCs) is the dominant type of cell treatment since over 70 malignant and non-malignant diseases can be treated in this way, whereas for specific haematological diseases this is the main and only therapeutic possibility a patient's recovery. The modern method of medical treatment using HSCs is more than 90% successful in optimal conditions (http://www.ztm.si). For such success, good donor-recipient immunological (HLA) matching is required. The HLA system differs in every person and it is very demanding to find a suitable match. In the international community, doctors decided to establish large registers of typified volunteer donors of HSCs to improve the possibility of HLA matching and thus also the outcomes of transplants. In Slovenia a register of non-related donors, Slovenia Donor, was established in 1991 and the next year it became a full member of the world register Bone Marrow Donors Worldwide (BMDW). All data are appropriately protected against unauthorised use.

There are several types of donor-recipient matching. If it is possible to use a patient's own HSCs, this is called an autologous donation. When this proves impossible, we look for another donor who may or may not be related to the recipient. Donation by another donor is called allogeneic and a donor is sought both in Slovenia and abroad.

The Slovenija-donor register

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

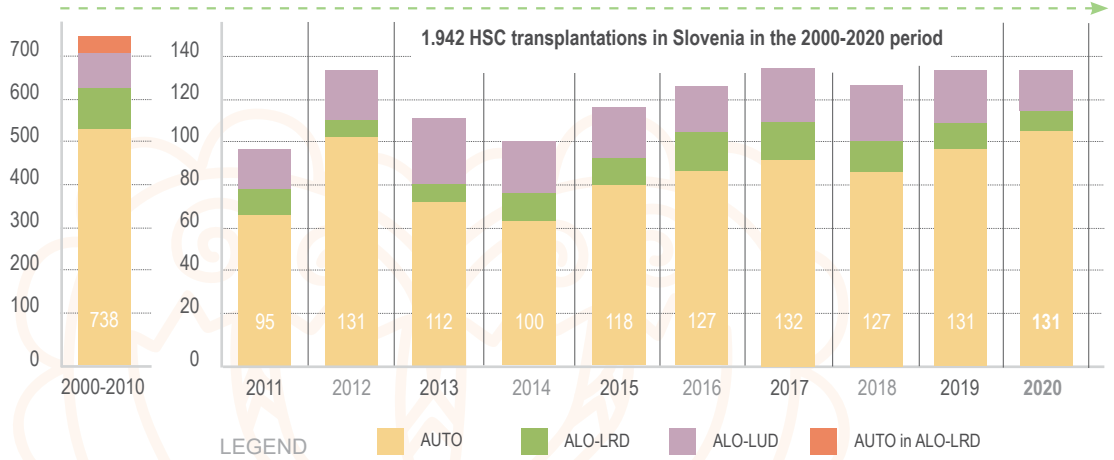
On 31.12.2020, the Slovenia Donor register featured 20,453 people, of whom 20,255 were entered in the BMDW world register.

HSC transplantations in Slovenia in the 2000–2020 period

Transplantion type	2000-2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
AUTO	531	68	101	74	63	84	86	92	88	89	104
ALO-LRD	102	9	8	7	11	10	15	12	13	11	10
ALO-LUD	84	18	22	31	26	24	26	28	26	31	17
AUTO and ALO-LRD	21										
TOTAL	738	95	131	112	100	118	127	132	127	131	131

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

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



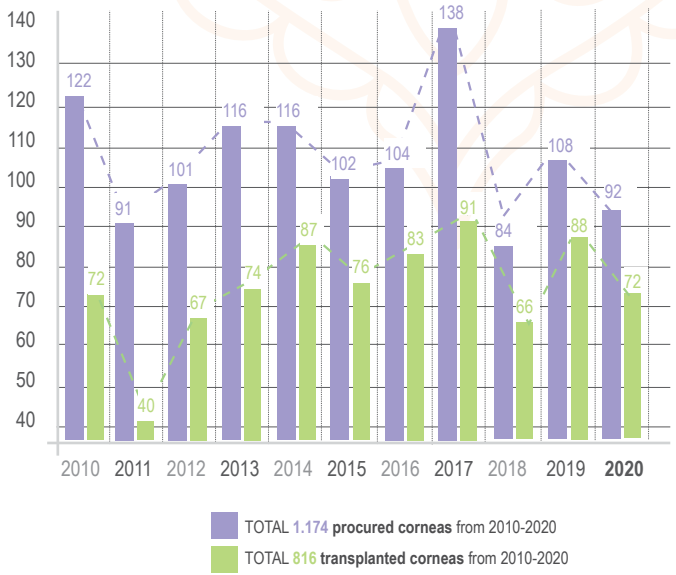
CORNEA PROCUREMENT AND TRANSPLANTATION PROGRAMME

Cornea transplantation is one of the most frequent and most successful tissue transplantations in the world. This medical treatment is often the only method that can improve sight after a disease or injury. In Slovenia, corneas are procured from deceased donors after a cardiac arrest or proven

Procured and transplanted corneas in the 2010–2020 period

Source: archive of Slovenija-transplant

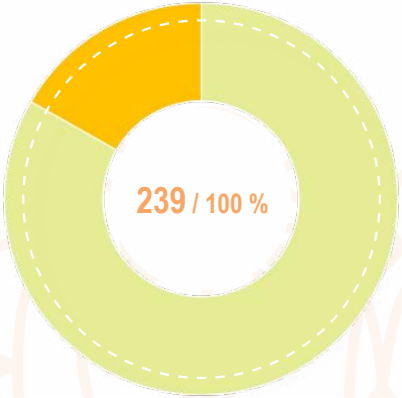
Year	No. of procured corneas	*No. of transplanted corneas
2010	122	72
2011	91	40
2012	101	67
2013	116	74
2014	116	87
2015	102	76
2016	104	83
2017	138	91
2018	84	66
2019	108	88
2020	92	72



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

brain death. The removal of corneas is possible following consent given by the deceased person before their death or if their close relatives do not object. The final decision on the suitability of corneas for transplantation is always taken by the recipient's responsible doctor. Corneas are transplanted in two transplantation centres: the Department of Ophthalmology in the Ljubljana UMC and the Department of Ophthalmology in the Maribor UMC.

Waiting list of patients seeking a cornea transplant at the Department of Ophthalmology in the Ljubljana UMC (on 22 March 2021, as a percentage) and Maribor UMC (on 11 February 2021)



Diagnosis	Number of patients
Keratokonus	40
Other diagnoses	199
TOTAL	239

232 Ljubljana UMC, **7** Maribor UMC

LEGEND

Diagnosis of keratoconus: **40 patients (17 %)**

Other diagnoses: **199 patients (83 %)**
(injuries, degeneration, retransplantation, corneal macula, Fuchs dystrophy, endothelial dystrophy, cornea guttata, aphakia and pseudophakia, bullous keratopathy, infections, other)

Source: Ljubljana UMC, Department of Ophthalmology

OTHER TISSUES AND CELLS

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

Slovenija-transplant has established co-operation with all tissue and cell institutions, which must hold a valid permit from the Agency for Medicinal Products and Medical Devices of the Republic of Slovenia (hereinafter: JAZMP). We ensure 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 also compile an annual final report on serious adverse events and reactions and submit it to the JAZMP, which then reports thereon to the European Commission.

Tissue and cell institutions along with quality and safety assurance

In Slovenia, 26 institutions are involved in the activity of procuring tissues and cells at 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 8 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 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 con-

ditions 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 reported data.

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 incapable of conception to produce a child, 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.

In 2019, the Ministry of Health of the Republic of Slovenia formed an expert group, composed of the AIBA centres from Ljubljana, Maribor and Postojna, the Zdravje Private Health Institute and Slovenija-transplant. This group is drawing up expert guidelines and legislation for the establishment of a national AIBA register to which individual AIBA centres are to report their activities by certain deadlines. The register is to be managed by the National Institute of Public Health (NIJZ) on whose premises it will be physically installed. Slovenija-transplant will have access to the data for the purpose of ensuring the traceability, transparency as well as the quality and safety of tissues and cells. The working group's activities were put on hold in 2020 due to Covid-19 epidemic.

Procuring and storing umbilical cord blood and the umbilical cord

In Slovenia we also procure haematopoietic stem cells from umbilical cord blood and the umbilical cord as well as other tissues (e.g. milk teeth). One public tissue bank, i.e. the Blood Transfusion Centre of Slovenia (hereinafter: BTCS), and three privately-owned institutions (Izvorna celica, Biobanka and FH-S) hold a permit for this activity. The public umbilical cord blood bank within the BTCS has stopped accepting samples of umbilical cord blood because a sufficient number of samples had been collected and stored to cater to the needs of Slovenia.

Number of procured tissues and cells in the 2009–2020 period

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Skin*	28	45	22	36	85	89	52	57	32	22	24	10
Bones*	38	123	108	67	93	82	147	74	80	78	71	59
Soft bone grafts*	22	39	/	3	11	3	9	/	12	/	/	/
Cartilage*	37	21	4	12	11	11	12	/	/	/	/	/
Reproductive cells (no. of cells)	15.854	43.472	8.640	27.479	41.929	37.542	39.769	26.191	36.338	13.778	26.813	28.209

* Unit: number of samples taken

Number of tissues and cells used in the 2009–2020 period

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Skin*	36	10	14	34	67	23	31	28	/	20	3	/
Bones*	23	47	57	97	59	62	92	82	72	71	81	101
Soft bone grafts*	12	/	2	2	3	4	3	5	2	3	5	4
Cartilage*	15	/	3	7	4	9	5	1	/	/	1	/
Reproductive cells	1.450	2.018	29.651	23.330	23.506	27.271	31.127	26.620	31.817	12.110	5.109	14.255

* Unit: number of samples used

Source: archive of Slovenija-transplant

Number of procured umbilical cord blood units

Institution / Year	2015	2016	2017	2018	2019	2020
Izvorna celica	76	144	107	82	81	81
Biobanka	175	178	266	110	224	197
FH-S	8	45	101	169	192	206
Neocelica	238	0*	0*	0*	0*	0*

* this institution stopped operating

Number of procured umbilical cord units

Institution / Year	2015	2016	2017	2018	2019	2020
Izvorna celica	60	116	96	52	73	75
Biobanka	32	150	222	96	212	184
FH-S	8	42	96	114	196	213
Neocelica	198	0*	0*	0*	0*	0*

* this institution stopped operating

Source: archive of Slovenija-transplant

Adverse events and reactions

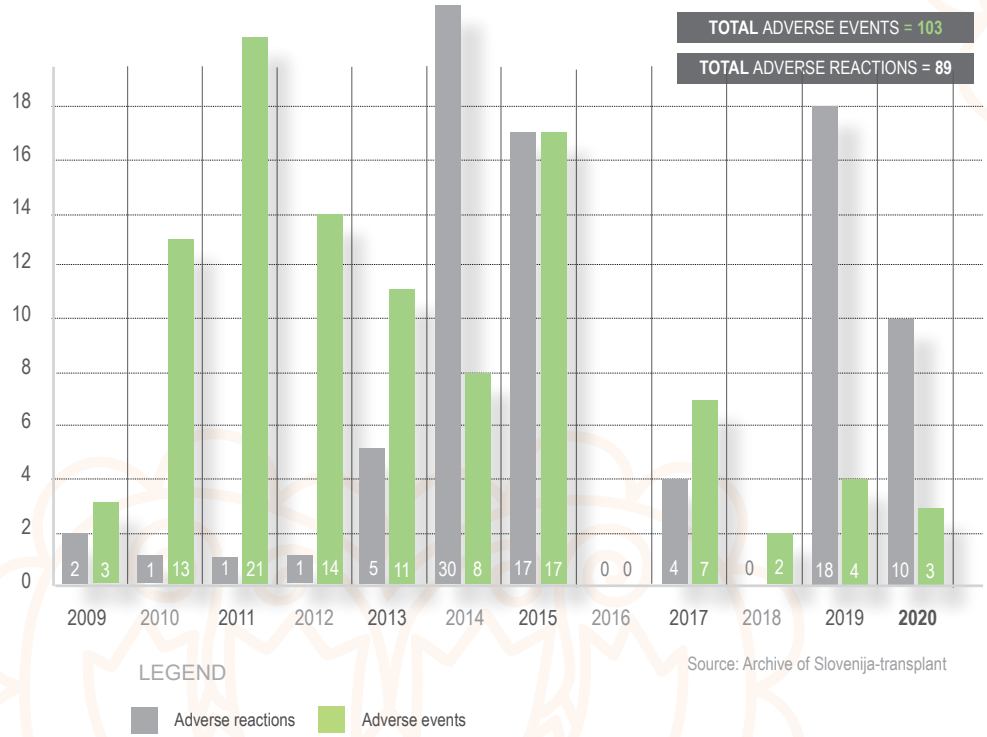
Slovenija-transplant is responsible for monitoring adverse events and reactions as well as deviations in the area of the procurement of tissues and cells for transplantation and/or tissue vigilance. The aim of collecting reports on adverse events and reactions or even raising doubts about them is to 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 description, adoption of appropriate measures for preventing damage to tissues and cells as well as people, reporting 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.

In 2020, Slovenija-transplant received 3 reports on adverse events – all occurring in the tissue and cell procurement chain. All there cases were detected in Orthopedic Hospital Valdoltra in bone procurement. We prepared an analysis and applied corrective measures. There were no serious consequences in any of the three cases and the risk of reoccurrence was assessed to be low.
An AIBA centre also dealt with 10 cases of adverse reactions. Three cases involved ovarian hyperstimulation syndrome and three patients were hospitalised. In 7 cases, strong venous bleeding occurred, but hospitalisation was not required.

We found that, in order to improve overall awareness, it is necessary to organise additional training on tissue vigilance and adverse event reporting because it is possible that the reporting of data on vigilance cases is slightly underrated.

Number of adverse events and reactions in the 2009–2020 period



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Oral presentations and lectures (in chronological order)

- Danica Avsec: Slovenija-transplant as contract holder with Eurotransplant and development of donation programme. 20 years of cooperation between Slovenia and Eurotransplant (conference). UMC Ljubljana, 17. 1. 2020.
- Andrej Gadžijev: National donation network and quality assurance programme. 20 years of cooperation between Slovenia and Eurotransplant (conference). UMC Ljubljana, 17. 1. 2020.
- Andrej Gadžijev: Organ and tissue donation in Slovenia. Transplantation and transfusion (students' congress). Medical faculty at the University of Ljubljana, 5. 3. 2020.
- Andrej Gadžijev: Communication with family members before the donation. Diagnostics and treatment of anterior occular segment. Congress of Nursing and midwifes association of Slovenia, Ljubljana, 6. 3. 2020.

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