



Annual Report 2023

Transplantation Center

USZ Universitäts
Spital Zürich

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1 The Transplantation Center in its 17th year of operation

Prof. Dr. med. Nicolas Müller, Head of the Transplantation Center

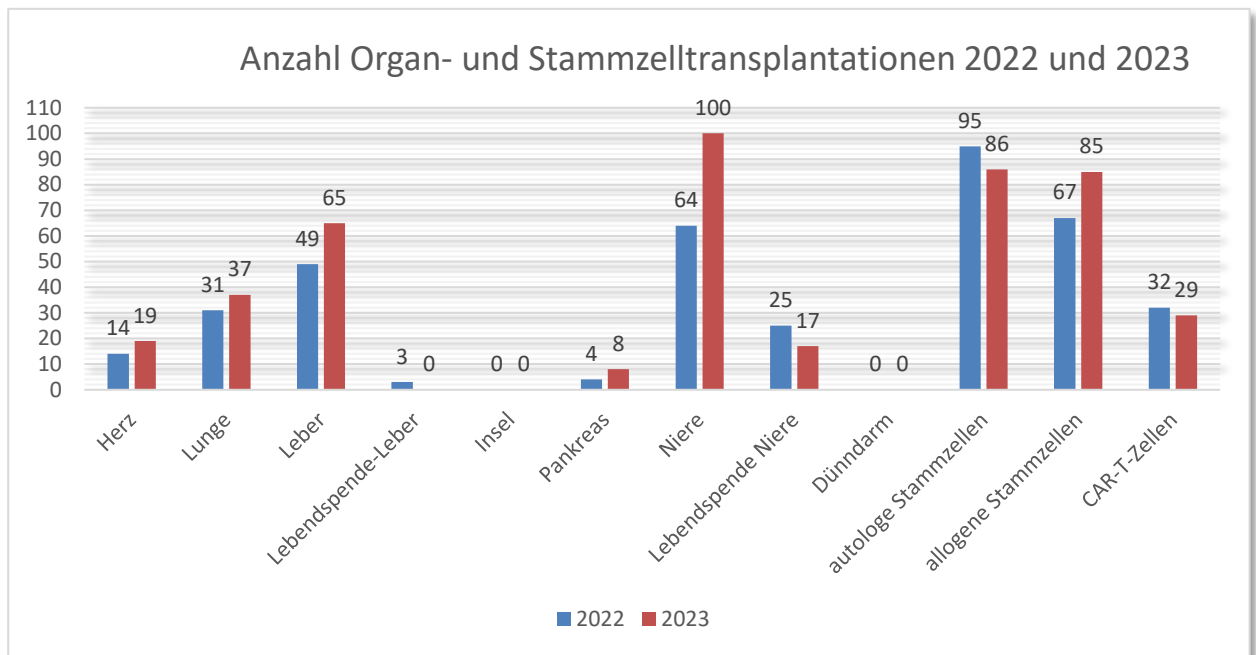


Figure1: Number of transplants in 2023 vs. the previous year

Summary

A total of **246** solid organ transplants were performed in 2023 (2022: **190**); **36** patients died on the organ transplant waiting list (2022: **26**). **85** allogeneic transplants, **86** autologous transplants, and **29** CAR-T cell therapies were performed in 2023.

Transplantation Center

2023 was a record year for our Transplantation Center – never before have so many organs been transplanted. This has been enormously challenging for all programs – and something that will undoubtedly be closely monitored given the possibility of another presumed-consent-related increase.

The concept of organ recovery/repair/assessment will become increasingly important for all programs. While this is an area where the University Hospital Zurich (USZ) is highly experienced, it will still have to work hard to establish it within the system. The concept's importance also stems from the fact that the number of DCD donors will continue to rise – where *ex vivo* options are particularly important for these organs. In this context, the first DCD heart donation in Switzerland, performed in Zurich in close collaboration with the other centers and Swisstransplant should be mentioned.

Research and training

The Center was highly successful once again this year with 97 publications.

The 17th Annual Symposium of the Zurich Transplantation Center was dedicated to an important topic: ***Humoral and cellular rejection in 2023: Prophylaxis and intervention – a journey across all programs***. It offered an excellent overview of the state-of-the-art and featured important input, also regarding adherence.

Objectives for 2024

- Establish a concept for a across-program Organ Recovery and Assessment Center.
- Finalize the establishment of STCS as an association geared toward securing the infrastructure in the long term.
- Swissmedic/FOPH inspection of the TPLZ.

2 Center-specific and integrative functions

2.1 Transplant Coordination

Stefanie Schiess, Head of Transplant Coordination

2023 was a highly successful year for transplants at the University Hospital Zurich (USZ) with an unprecedented number of organ transplants.

The year also brought many more changes for the Transplant Coordination team.

One noteworthy change is that, as of February 1, 2023, we were put under the leadership of the Medical Co-Director of the cross-disciplinary area, Prof. Dr. med. Nawid Khaladj. That means three relevant organizational units – the Transplantation Center, the Donor Care Association (DCA) and Transplant Coordination – now share the same organizational leadership.

Another important milestone was the first DCD heart donation performed in Switzerland with the help of the TransMedics® Organ Care System (OCS).

The most important events/challenges and successes at a glance

January 2023

- We welcomed Ms. Nadine Hauser, who joined the Living Kidney Donation team.
- Farewell to Prof. Dr. med. Pierre Clavien.
- Participation in the Annual Meeting of the Swiss Transplantation Society in Thun.

February 2023

- Samantha Gentile started her CAS Leadership program at ZHAW in February.
- Integration of the cross-disciplinary area under the leadership of Prof. Dr. med. Nawid Khaladj.
- Grit Streese joined the Liver and Living Liver Donation team on February 1, 2023.

March 2023

- SwissTransplant held its winter symposium in Lucerne in early March 2023, as in previous years. A total of three people were able to attend.
- First DCD heart donation using the OCS machine at USZ.
- Reintroduction of the ex vivo perfusion lung (EVLP) method at USZ.

April 2023

- Ms. Bianca Krawietz joined the Living Kidney Donation team.
- This month, we bid farewell to Prof. Dr. med. Beat Müllhaupt and welcomed Prof. Dr. med. Andreas Kremer as his successor.

June 2023

- In June 2023, we welcomed Prof. Dr. med. José Oberholzer as the new Director of Department for Visceral and Transplant Surgery.
- First robotic-assisted transplant at USZ.
- Participation in the American Transplant Congress.

September 2023

- Participation at the ESOT Congress in Athens with three people in attendance.

November 2023

- Farewell to Samantha Gentile, who has decided to take on a new challenge in a leading role.
- Farewell to Prof. Dr. Philipp Dutkowski.

Headcount as of December 2023

A total of ten people are employed in Transplant Coordination.

As a result, 880 FTEs were available at the end of 2023 to cover shift work.

The employees in Transplant Coordination coordinated a total of 224 Swiss donors and 266 foreign offers in 2023.

Information about the transplant figures

The number of organ donors in Switzerland increased from 164 to 200 in 2023. 584 postmortem and 110 live organs were transplanted. All in all, 675 people received an organ transplant, which is 105 more than in the previous year (source: FOPH).

A total of 240 evaluations were carried out by the transplant coordinators. This significantly exceeds USZ's previous record.

A total of 299 patients were placed on the national waiting list by USZ's transplant coordinators in 2023.

A total of 246 organs were transplanted at USZ – a new record (+22.8%).

Organ	2022	2023	Increase
Heart	14	19	26.3%
Lungs	31	37	16.2%
Liver	52	65	20.0%
Kidneys	89	117	23.9%
Pancreas	4	8	50.0%

The number of living kidney donations decreased slightly compared to the previous year.

Patient care

Stage 1 Living kidney donation	50
Stage 2 Living kidney donation	40

Project work

- STATKO
- OKT
- STALOS
- STS
- Quality Management

Presentations/Talks

- ZINA
- Waid Hospital Nephrology
- Triemli Nephrology
- Frauenfeld Cantonal Hospital, Intensive Care Unit
- Training day for the ICU post-graduate course of studies
- Continuous education for USZ Emergency Department
- Careum
- Various training sessions in USZ wards

Supervision of apprentices

- Interview for various assignments

Ongoing professional development

- SGI Congress Thun
- OCS
- ESOT
- USZ Autumn Symposium – Transplantation Center
- Grand Rounds
- SWTP autumn symposium

2.2 Transplant Immunology Laboratory

Dr. med. Ph. D. Jakob Nilsson, Senior Attending Physician, Transplant Immunology and Zehra Gündüz, Senior Biomedical Analyst with qualifications from Higher Technical College (BMA), HLA Typing Laboratory

Analyses performed

In 2023, the Transplant Immunology Laboratory once again provided the Transplantation Center of University Hospital Zurich (USZ) with Transplant Immunology Laboratory analyses of the highest international standard. A total of 7,261 (+16%) clinical samples arrived at the laboratory and were used to perform 2,793 transplant-related HLA typings and 7,011 bead-based analyses of anti-HLA antibodies. The laboratory is available around the clock, ensuring rapid HLA typing of organ donors and enabling donated organs to be allocated within the Swiss Organ Allocation System (SOAS). In 2023, we carried out HLA typing on 74 deceased organ donors. We also helped cross-match another 96 deceased organ donors. We assisted the stem cell transplant program by carrying out immunological transplant tests on 108 potential stem cell recipients and performed HLA typing on 195 potential donors.

Waiting list for organ transplants

The Transplant Immunology Laboratory performs immunological transplant tests around the clock, ensuring that the waiting lists for organ transplants are kept updated. On June 1, 2024, 336 patients at USZ were on the waiting list for a donor kidney, of which 120 were newly registered in 2023. In the same period, 117 patients received a new kidney at USZ (of which 17 were from living donors). With regard to lung transplants, we carried out 61 immunological transplant evaluations of potential candidates in 2023 and 37 patients received a new lung at USZ. 24 patients were on the waiting list for a lung transplant on June 1, 2024. We also performed immunological characterization for 23 potential heart transplant candidates, 19 of which were transplanted at USZ in 2022. 16 patients were on the waiting list as of June 1, 2024.

Notable changes in laboratory procedures

Several changes were made to our laboratory procedures in 2023. We introduced a new technique for sequencing HLA genes with the help of Oxford Nanopore Technology. This novel sequencing technique allows us to obtain complete sequences of all 11 HLA genes within 3.5 hours, making it possible to use this technique for organ transplants from deceased donors. The ability to obtain high-resolution HLA data improves immunological risk assessment during organ allocation and enables personalized decision making. We have also adapted our protocol for the virtual cross-match process used for kidney transplants at USZ. For this, we validated a new method of single antigen bead-based anti-HLA antibody analysis and are able to offer this analysis as part of the organ allocation process to improve the virtual cross-match evaluation.

Additional information

Four new BMAs joined the team in 2023 (Alessandra Sodero, Diana Mäusli, Ladina Strimer and Tanja Schweizer) and two BMAs left the team (Ersin Dincer and Melanie Weber). The European Federation of Immunogenetics (EFI) also conducted an accreditation process for the laboratory. Our EFI laboratory accreditation was successfully renewed without any irregularities detected and contains positive comments about the laboratory's high standard. The laboratory continued to support the ongoing Swiss Transplant Cohort Study (STCS) by processing 453 clinical samples from transplanted patients and retrieving and shipping aliquots from stored samples for STCS-approved clinical trials in 2023.

2.3 Prizes

Prizes/awards received by the TPLZ or by the clinics in relation to organ transplants:

2023 Clinical Research Prize of the Zurich Transplantation Center

- **Prof. Dr. med. Nilufar Mohebbi and Dr. med. Alexander Ritter** for their paper on "Sodium bicarbonate for kidney transplant recipients with metabolic acidosis in Switzerland: a multicentre, randomised, single-blind, placebo-controlled, phase 3 trial".

2023 Experimental Research Prize of the Zurich Transplantation Center

- **Prof. Dr. med. Chiara Magnani** for her paper entitled "Anti-CD117 CAR T cells incorporating a safety switch eradicate human acute myeloid leukemia and hematopoietic stem cells".

Excellence in Patient Care Award 2023 of the Zurich Transplantation Center

- **The surgical and anesthesiological nursing staff of the F operating rooms (Cardiac, Thoracic and Visceral and Transplantation surgery)** were awarded the "2023 Merit Award" for their achievements as clinical nurses while providing care and administering anesthesia to transplant patients in the operating room.

Lifetime Achievement Award:

- **Prof. Dr. med. Thomas Müller** was presented with the Lifetime Achievement Award for his life's work.

2.4 Participation on national and international committees

Philipp Dutkowski

President-elect of the Swiss Transplant Society
President of STAL
Member of the STS Scientific Committee
Member of STAPT
Member of the Medical Committee

Andreas Flammer

President-elect of the Swisstransplant Heart Working Group (STAH)
Member of the Scientific Committee (STCS, Swiss Transplant Cohort Study)
Past President of the Heart Failure Working Group of the Swiss Society of Cardiology
HSM "Advisory Group" VAD
Fellow of the European Society of Cardiology (FESC)
Fellow of the European Heart Failure Association (FHFA)
Board Member of the European Heart Failure Association (HFA) (2024 -)
Member of the HFA Committee on Acute Heart Failure

René Hage

Member of the European Respiratory Society (ERS)
Member of the European Cystic Fibrosis Society (ECFS)
Member of the European Society of Organ Transplantation (ESOT)
Member of the International Society of Heart and Lung Transplantation (ISHLT)
Associate Editor of the Journal of Heart and Lung Transplantation Open (JHLT Open)
Fellow of the American College of Chest Physicians (FCCP)

Sven Hillinger

Scientific Committee: Swiss Transplant Cohort Study
Member of the Ethics Committee of the University Hospital Zurich

Kerstin Hübel

Member of the Board: STALOS

Stephanie Klinzing

SGUM: Member of the POCUS Continuing Education Committee
Swisstransplant: Member of the CNDO (representative SGI)

Andreas Kremer

Member and Steering Committee in STCS
Swiss Transplantation Society
STAL (including Audit Group)

György Lang

Member of the Thoracic Advisory Board, Eurotransplant Foundation
Member of the LAS Review Board, Eurotransplant Foundation
Past President of the Austrian Society of Thoracic Surgery
President of the ÖÄK Examination Board for Certification as a Specialist in Thoracic Surgery
Member of STALU Swisstransplant

Roger Lehmann

Past President of the Central European Diabetes Association (FID) 2013 – 2018
Board Member of the European Pancreas and Islet Transplant Association 2013 – 2019
Scientific Committee: Swiss Transplant Cohort Study

Nicolas Müller

Board member, past president, Swiss Society of Infectious Diseases
Member, IVHSM Specialist Body
Chairman of the Scientific Committee, Swiss Transplant Cohort Study
Member of the Board and Head of the Scientific Committee, Swiss Society of Transplantation
Editorial Board of Xenotransplantation; Transplant Infectious Diseases, Transplantation
Member, Medical Committee, Swisstransplant
Council member-at-large, Immunocompromised Host Society ICHS

Thomas Müller

Member of the Swiss Transplant Kidney Working Group (STAN)
President of the Swiss Transplant Working Group for Living Organ Donors (STALOS)
Member of the Scientific Committee (STCS, Swiss Transplant Cohort Study)
Member of the Swiss National Science Foundation evaluation body (SNSF)
Member of the Ethics Committee of the University Hospital Zurich
Co-chair of the Declaration of Istanbul Custodian Group (DICG)
Co-Director of the Swiss Kidney Paired Donation Group (KPD)
Member of the "Living Donor Organ Donation Sub-Committee" of the Swiss Academy of Medical Sciences
Board member of the ISN Western Europe Regional Board
Member of the Swiss Transplant Society Medical Committee
Board Member of the Banff Pathology Group

Mirjam Nägeli

Board Member and Academic Secretary of SCOPE (Skin Care in Organ Transplant Patients Europe)
Member of the Scientific Committee of the Swiss Transplant Cohort Study (STCS)
Member of ITSCC (International Transplant Skin Cancer Collaborative)

Jakob Nilsson

Member of the Boards/Scientific Committees (STAN, Immunology Working Group)
Lead/member of the AI ML working group and Swiss Transplant Cohort Study (STCS) lab group
Fellow of the Transplant Society
Fellow of the European Federation of Immunogenetics
Associate editor of Frontiers in Immunology

Fabian Rossler

Member of the Swiss Transplant Kidney Working Group (STAN)
Member of the Swiss Transplant Pancreas Working Group (STAPS)
Member of the Scientific Committee (STCS, Swiss Transplant Cohort Study)
Swiss Transplant Society
Fellow of the European Board of Surgical Qualification – Transplantation
Board Member of the European Pancreas Transplant Research Consortium

Stefanie Schiess

Swisstransplant: Member of a CNDO working group
 Member of the Medical Committee working group

Isabelle Schmitt-Opitz

SAKK Thoracic Surgery Representative for the Lung Cancer Group
Chair of the Lung Cancer Center Zurich
International Mesothelioma Interest Group (iMig) board member
Swiss National Science Foundation (SNSF) National and Research Council
Board of Trustees, Schulthessklinik
International Director of the American Association of Thoracic Surgeons (AATS)
Past President of the European Society of Thoracic Surgeons (ESTS), Member of the Board of Directors, and Learning Affair Committee
Program Committee for ESTS, AATS, AATS ITSOS, ESMO, ISHLT, iMig, and ELCC
International Association of the Study of Lung Cancer (IASLC) Mesothelioma Task Force, MPM Staging Subcommittee, Track Committee Member NSCLC
International Society of Heart and Lung Transplantation (ISHLT) representative of the Advanced Lung Failure and Transplantation Interdisciplinary Network Steering Committee
Journal of Thoracic and Cardiovascular Surgery (JTCVS) Associate Editor
Chair of the 2025 World Conference on Lung Cancer (WCLC)
Scientific Committee European Society for Medical Oncology (ESMO) Congress 2025
Scientific Committee of the European Lung Cancer Conference (ELCC) 2025

Dominik Schneidawind

Elected Board Member of Swiss Blood Stem Cell Transplantation (SBST)
Vice President of the Swiss Group for Clinical Cancer Research (SAKK) Cellular Therapies Working Group
Scientific Committee Member of the Swiss Transplant Cohort Study (STCS)
European Society for Blood and Marrow Transplantation (EBMT)
German Society of Medical Oncology and Hematology (DGHO)
German Working Group for Hematopoietic Cell Transplantation and Cellular Therapy (DAG-HSZT)
European Organization for Research and Treatment of Cancer (EORTC)
Consortium for iNKT Research and Therapy (CiRT) Advisory Board Member

Rolf Schüpbach

Swiss Transplant Society

Markus Wilhelm

Past President of the Medical Committee of Swisstransplant
Past President of the Working Group Heart of Swisstransplant (STAH)
Member of the Working Group for Procurement and Transportation of Swisstransplant (STAPT)
Member of the Steering Committee of the Swiss Transplant Cohort Study (STCS)
Member of the Working Group Heart Failure of the Swiss Society for Cardiology
Member of the Mechanical Circulatory Support Council of the International Society for Heart and Lung Transplantation

Marco Zalunardo

SGAR: Member/President of Working Groups: Evaluation of Teaching Centers (2), Non-Anesthetist Analgosedation
SGAR: Committee: Visitation
SGAR: Committee: Education
SIWF: Executive Board Member
SIWF: Member of the Education Grant Jury

2.5 Professional development

Prof. Dr. med. Nicolas Müller, Member of the TNT Organizing Committee

The **17th Annual Symposium** of the Zurich Transplantation Center was dedicated to an important topic: **Humoral and cellular rejection in 2023: Prophylaxis and intervention – a journey across all programs**. It offered an excellent overview of the state-of-the-art and featured important input, also regarding adherence.

The **2023** TNT seminar focused on specific as well as overarching topics, and we were able to attract prominent speakers from abroad in addition to USZ speakers.

We would like to take this opportunity to thank our sponsors, without whom these events would not be able to take place in this context. The program can be found in the appendix.

2.6 Swiss Transplant Cohort Study (STCS)

Prof. Dr. med. Nicolas Müller, President of the STCS Scientific Committee

Being designated a cohort of national importance (together with the Swiss HIV Cohort), the regulatory foundations of this cohort were redefined and it was transformed into a “Data Infrastructure and Services” organization whose legal form is that of an association according to Swiss law. University Hospital Zurich (USZ) and the other five transplantation centers are all members. The remuneration of the transplantation centers was also reorganized as a result and implemented successfully.

With more than 6,833 active patients, one-third of which (2,282) in Zurich, the STCS has evolved into an institution of international renown whose research results have generated significant interest. The chart shows how the complexity of our patients is reflected in our publications – it is rare for one question to be meaningfully examined without factoring in other aspects as well.

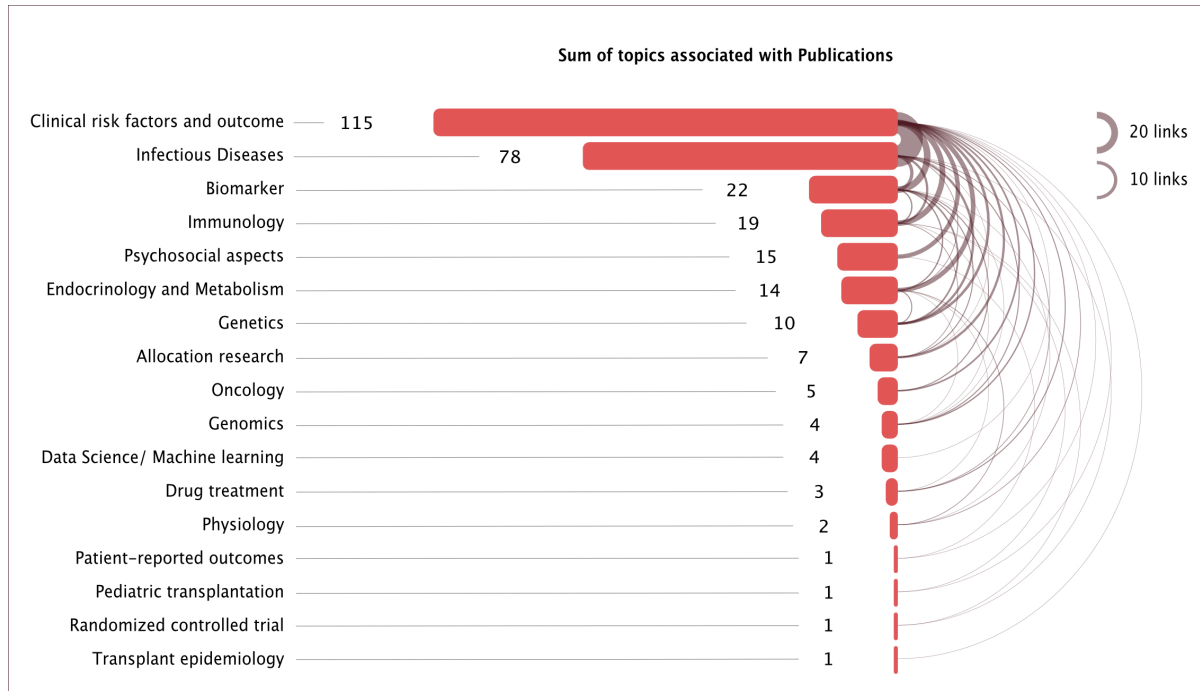


Figure 2: How the various topics in the STCS publications are interconnected

Our goal is to make even better use of this wealth of data and samples and to encourage everyone involved to submit projects.

3 Organ donation network

Donor Care Association (DCA)

The following information is taken from the Donor Care Association Annual Report 2023. Organ donation medicine comprises the specialist hospital-related processes relating to organ donation. DCA employees are affiliated with the University Hospital Zurich (USZ). In 2023, 47 organ donations were made in the DCA network – the same as in the previous year and a consolidation of last year’s high.

The further shift from DBD to DCD donations is impressive, a trend that is also being observed internationally. This, of course, results in a significantly higher workload and illustrates the extraordinary importance of a multifunctional organ pathway with the possibility of organ recovery and assessment. The highlight from donors’ and recipients’ point of view was the first DCD heart donation in Zurich, which was performed successfully following meticulous preparation.



Figure 3: DBD and DCD donors registered with the Donor Care Association, 2018 – 2023

4 General care of transplant recipients at the Transplantation Center

4.1 Anesthesiological aspects of transplantation

Dr. med. Rolf Schüpbach, Attending Physician, Institute of Anesthesiology (IFA)

A single-lung transplant, which had not been done at the University Hospital Zurich (USZ) for many years, was performed on six patients in 2023. It used a new ventilation strategy that made ECMO unnecessary during the transplant. Referred to as flow-controlled ventilation, this technique uses significantly lower driving pressures and triggers as many alveoli as possible in the remaining lung, therefore ensuring very gentle alveolar ventilation during highly challenging single-lung ventilation.

The change in the leadership of Visceral Surgery and the departure of the head of the liver transplant program necessitated some important adaptations in close collaboration with the IFA. These changes were focused on adding the "piggyback" surgical technique. Operating times needed for this technique must be monitored; personnel planning sometimes requires that two anesthesia teams be deployed, which is challenging given the general scarcity of human resources.

Living kidney transplants are now performed in the DHOF OR using a robot-assisted approach for harvesting the donor kidney. This technique, which is extremely gentle for the donor, also makes it possible to start operating on the recipient much earlier since the F operating room is available much earlier, thereby eliminating the need to wait for the donor's operation to finish. In the next step, as soon as trained staff are available and surgical capacity can be made available 24/7, the actual transplant should also be performed with robot assistance.

DCD donor heart transplants have been standardized at USZ following the establishment of cardiac perfusion with the OCS system.

4.2 Nursing care at the Transplantation Center

Helen Ziegler, MScN, Advanced Practice Nurse, Department C

Nursing care in the East E III Transplant ward

The East E III ward has a capacity of 15 beds.

If patients receive an organ offer, they usually enter East E III and are prepared specifically for the upcoming operation within a few hours.

Patients then receive specialist care and support in this ward after the successful lung, liver, kidney, pancreas or islet cell transplant.

Being a nurse comes with a great deal of responsibilities. Among other things, nurses are responsible for providing structured patient education sessions to ensure that immunosuppression medications are taken correctly and on time as well as to arrange patients' discharge to a rehabilitation clinic or home.

Last year saw a personnel change in the ward's management team. As of 1 June 2023, the position of Ward Nurse Manager was filled internally with Ilaria Pastore.

APN care consultations

Three APN (Advanced Practice Nurses) offer consultations with patients and their relatives before and after a kidney, heart, or liver transplant. The aim is to optimally prepare patients and their relatives for life with the new organ, to strengthen their personal responsibility in dealing with the disease, and to promote individual self-management. The long-established transplant care consultations take place on both an outpatient and inpatient basis.

Kidney transplant care consultations

Maria Dammann, Advanced Practice Nurse

The care consultations focus on patients and their relatives before and after a kidney transplant. The initial face-to-face contact takes place during the inpatient stay after the transplant. In the following weeks and months of the outpatient follow-up check-ups at the University Hospital Zurich (USZ), consultations address the following topics: medication management, promoting healthy behavior with regard to nutrition and exercise, coping with the patient's new circumstances (assessing the need for support at home, questions about returning to work, dealing with social settings) and preventing infections and long-term complications. The content and scope of the consultations are adapted to patients' individual needs, with the ability to self-manage an overarching objective. Pre-transplant care consultations aimed at helping patients prepare for a kidney transplant were also expanded further.

Collaboration at USZ

Due to changes made to the premises of the outpatient Department of Nephrology, adjustments were also made to the care provided by the Advanced Practice Nurses. Patients' post-transplant questions and concerns were increasingly answered by telephone and e-mail. Collaboration with and support through external specialist services (Spitex, retirement and nursing homes) was also expanded.

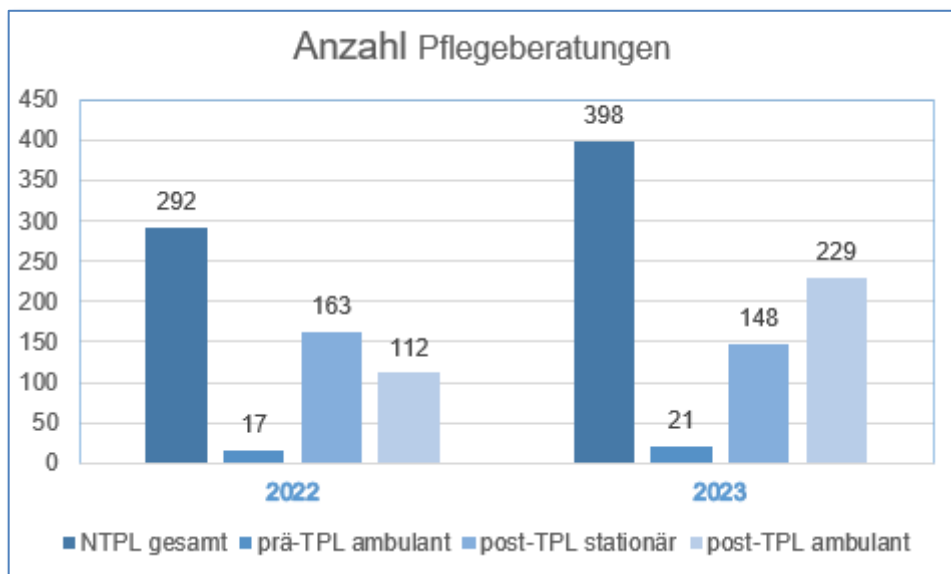


Figure 4: Number of care consultations

Information brochures

Patients receive three information brochures for educational purposes after their kidney transplant. This helps them prepare for life with a transplant, offering structured education sessions during their inpatient stay and answering any questions they may have about life with their new organ after the transplant. All three brochures were updated and reprinted in 2020.

Wards

Changing the way inpatient education sessions are structured and delivered also provided the opportunity to optimize patient collaboration and care. Above all, Advanced Practice Nurses are a resource for the care of patients and relatives with greater care and support needs. Dialog with the nurse expert in the ward and the nursing team plays a key role in maintaining a high level of care. The weekly interprofessional ward rounds allow for a collaborative exchange with patients.

Lugano Cantonal Hospital

The dialog between nurses at different hospitals is also used to hand over unresolved issues from previous consultations and to ensure continuity of care for patients.

Children's Hospital Zurich

As part of a jointly organized transition afternoon, two young adults moved from the pediatric unit to adult wards in November 2023. After an initial status review, the Advanced Practice Nurse will continue to provide care at different intervals based on the patients' individual needs.

Liver transplant care consultations

Andrea Pfister Koch, Advanced Practice Nurse

Liver transplant care consultations offer patients and their relatives a consulting service before and after the transplant. The content and scope of the consultations are adjusted to meet the individual needs of those affected. The issues covered in these sessions are as follows:

- Before the transplant: Symptom management, waiting list process, health behavior (stopping smoking, abstinence from alcohol, nutrition and exercise, etc.), emotional processing of their illness-related situation, facilitation of peer discussions.
- After the transplant: Taking medication, preventing infections, self-monitoring, how to respond to organ rejection, sun protection, and health behavior.

Around two-thirds of all consultations take place during an inpatient stay. The majority of outpatient consultations are carried out over the phone or by e-mail.

In terms of numbers, APN consultations continue to rise slightly in comparison to previous years. Patients and relatives are taking advantage of the easy-to-access offer to clarify questions and concerns or, if necessary, to be referred to internal specialists or external service providers.

In addition to the APN-only consultations, a total of 195 patients were seen on an interdisciplinary basis together with a senior attending physician on 36 OLT consultation afternoons. Patients appreciate the continuity of care and the opportunity to address psychosocial concerns in addition to medical issues.

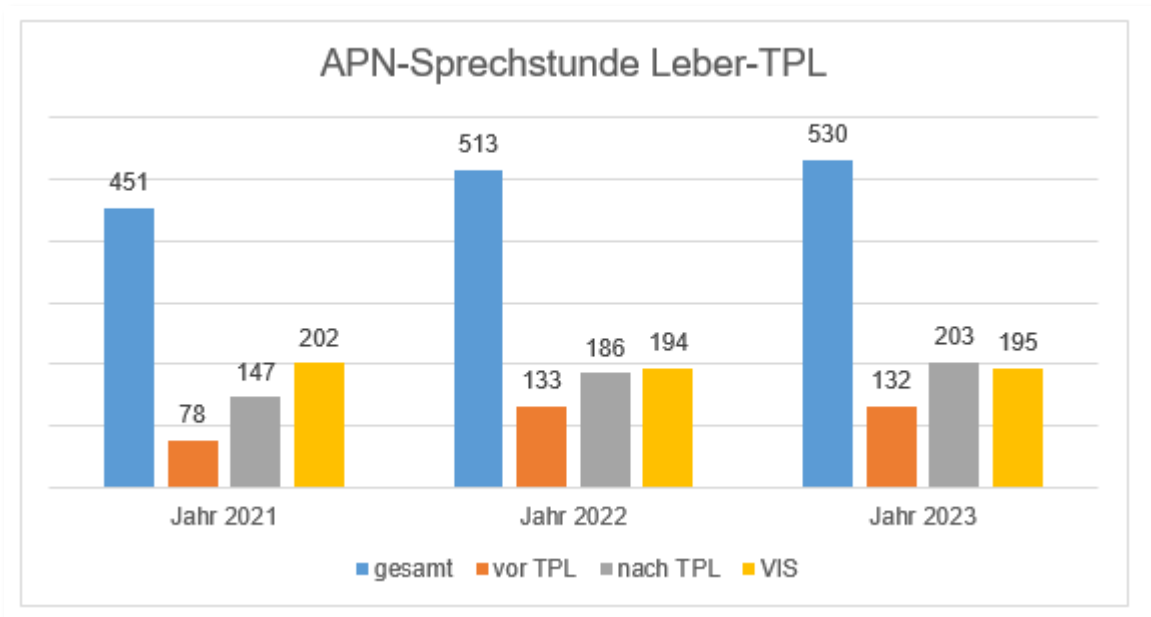


Figure 5: APN liver transplant consultation

Information brochures

In addition to the consultations, patients and relatives receive the brochures “Useful Information on Preparing for a Liver Transplant”, the “Guide to Cirrhosis of the Liver” (available in four languages) and “Useful information on Life After a Liver Transplant”. The brochures are also used as the basis for the structured inpatient education sessions. Theme cards with pictures are used and handed out during consultations as needed (if there are language barriers, cognitive impairment, etc.).

Collaboration

The collegial and interprofessional collaboration within USZ and beyond was further consolidated and expanded in 2023.

- In UHZ: Pre-transplant collaboration has been established with the two APNs in Hepatology, Dr. Sonja Beckmann and Ms. Rebecca Schäfers. They care for patients with cirrhosis of the liver who are not yet eligible for a liver transplant or who, for various reasons, are unable to undergo a transplant and require palliative care. Here, the two APNs in Hepatology fill an important gap. They also assist with the care and counseling of complex liver transplant patients requiring inpatient treatment. In 2023, Ms. Johanna Binder took over responsibility for coordinating and organizing the pre-transplant consultations in her role as clinical nurse. If inpatient evaluations are needed, she also helps the APNs by documenting a variety of assessments (frailty assessment, etc.) and submitting the questionnaire used for documenting quality of life in cases of liver disease (CLDQ-D).
- The consultations as well as the structured inpatient education sessions during hospital stays following the transplant are planned and carried out together with the nursing teams on the wards. The weekly interprofessional case discussions allow the treatment team – comprising the Nursing Service, APNs, Medical Service, Psychologist, Nutrition Counseling, and Physiotherapy – to quickly discuss individual needs and coordinate the discharge plan in a timely fashion.
- Cooperation with individual rehabilitation centers improved in 2023. The Liver Transplant APN is in regular contact with the specialists from the Clavadel/Davos rehabilitation clinic, Seewis and aarReha Schinznach. The improved collaboration also arose as the result of presentations on the topic of liver transplants in the respective hospitals.
- Kantonsspital St. Gallen (KSSG): Patients receiving medical care predominantly at KSSG before and after their transplant are likewise provided with care consultations by Advanced Practice Nurses in Hepatology at KSSG. The working relationship allows for a smooth transition between the institutions. Unresolved issues from previous consultations can also be handed over to the Advanced Practice Nurse in the respective hospital.

Presentations

- Advanced training for Nursing Department C: *Immunosuppression in heart, kidney and liver transplants* (April 5, 2023), presentation by APNs: Irene Stalder-Ochsner, Maria Dammann, Andrea Pfister Koch.
- aarReha Schinznach, nursing staff: *Liver transplants: continuous inter-hospital patient care* (April 19, 2023), presentation by Andrea Pfister Koch.
- TNT seminar: *Specialized care consultation for patients following heart, kidney and liver transplants* (May 22, 2023), presentation by APNs: Irene Stalder-Ochsner, Maria Dammann, Andrea Pfister Koch.
- Seewis Rehabilitation Clinic, nursing staff and medical service: *Liver transplants: continuous inter-hospital patient care* (September 19, 2023), presentation by Andrea Pfister Koch.
- 2023 Visceral Medicine Congress in Hamburg: *Inter-hospital care consultations for hepatology and liver transplants*. Presentation by Rebecca Schäfers.
- 2023 EASL Congress in Vienna: *Caring for patients with liver disease – the perspective of a clinical nurse specialist in Switzerland*. Presentation by Sonja Beckmann.

Heart transplant care consultation (HTPL)

Shahira Hraibi-Malash, Advanced Practice Nurse

Heart transplant care consultations offer patients and their relatives a consulting service before and after the transplant. The content and scope of personal consultations at the University Hospital Zurich (USZ) are adapted to the patient's individual needs and medical history. Irene Stalder-Ochsner, Advanced Practice Nurse, led the advisory team until October 2023, after which the position remained vacant until the end of the year. Shahira Hraibi-Malash, Advanced Practice Nurse, took over the position in January 2024. 89 consultations were conducted with 37 patients and their relatives from January to September 2023.

Before a heart transplant

The first consultation takes place as part of the inpatient transplant evaluations for transplant patients. Topics include the waiting list process, what happens during a heart transplant, the duration of the hospital stay, the recovery time, and any potential psychological and emotional challenges. At this stage, patients are also given the "Information on Heart Transplants" brochure and, on request, the contact details of a heart transplant patient. Patients additionally receive a consultation on the topic of heart failure to promote the heart failure self-management and promote positive health behavior such as stopping smoking, eating a healthy diet, exercising, and limiting alcohol consumption.

Depending on patient needs, further consultations are scheduled as part of the monthly outpatient consultations during the waiting period, which can be a challenging time both physically and mentally.

After a heart transplant

After the heart transplant, patients and relatives learn about aspects of self-management through structured education sessions, such as hygiene-related measures, checking vital signs and symptoms, as well as medication management. These education sessions are held in an inpatient setting and are designed and delivered by nurses from the EAST D 1 and 2 Heart Transplant wards.

At the same time, the patient will have at least one HTPL care consultation in order to plan and support the transition to rehabilitation and the subsequent return home to day-to-day life, as well as to provide support and clear up any unanswered questions. If necessary, the phone will be handed to another member of staff or the nursing staff at the rehabilitation clinic providing follow-up treatment is notified.

The main topics covered at this stage include the procedure and frequency of follow-up checks, the signs and symptoms of organ rejection or infections, as well as getting in touch with caregivers in a timely manner if the patient has any physical complaints or emotional struggles.

Further outpatient follow-up consultations are planned as needed and cover topics such as medication adherence, prevention of cardiovascular risk factors, sun protection, dental visits, return to work, and travel arrangements following heart transplantation.

Collaboration at the University Hospital Zurich (USZ)

The treatment team, comprising the Medical Service, the Nursing Service, APNs, Psychiatrist, Nutrition Counseling, Physiotherapy, Social Services, and Transplant Coordination, is supplemented with additional specialists as required.

Transition program from the Children's Hospital Zurich (KISPI)

Since 2020, there has been an ongoing dialog with the APN in Heart Transplants from the Children's Hospital Zurich (KISPI) as well as a transition program for young adults and their relatives to support the transition from care in the KISPI to a (heart transplant) consultation at USZ.

One young person was transferred to USZ consultations in 2023.

4.3 Infectiological consultation for transplant patients

Prof. Dr. med. Nicolas Müller, Senior Attending Physician, Department of Infectiology

Of a total of 9,550 consultations, 2,211 had a transplant-associated background. This corresponds to approximately a quarter of all the infectiology consultations held at the University Hospital Zurich (USZ). Our four interdisciplinary ward rounds have become well established: Optimal care for these patients with complex needs is ensured thanks to joint discussions from a surgical and specialist medical perspective, complemented by an infectiological and pharmacological perspective, and part of the visit is also accompanied by specialist nursing staff.

4.4 Follow-up care for organ transplant patients in the Department of Dermatology

Dr. med. Mirjam Nägeli, Department of Dermatology

Recipients of solid organs and bone marrow/stem cells are considered to be part of the specialized consultations for immunosuppressed patients at the Department of Dermatology. The ISS is the only outpatient dermatology clinic that remains on the campus of University Hospital Zurich (USZ) and has not been moved to the Circle. In 2023, we recorded over 2,800 consultations with over 2,000 patients. The main focus is on the prevention, early detection, and treatment of non-melanoma skin cancer (squamous cell carcinomas), which involves the most common malignant tumor resulting from long-term immunosuppression. Existing tumors are detected and removed as part of the pre-transplant assessment. In addition, transplant patients are advised on the problematic nature of non-melanoma skin cancer and are taught prevention measures such as changing habits, clothing and the use of sunscreen, as well as how to detect symptoms at an early stage. We offer inpatient extracorporeal photopheresis for patients with chronic lung rejection (bronchiolitis obliterans) after a lung transplant and chronic graft-versus-host disease after a stem cell transplant (in addition to dermatological patients with cutaneous Sézary T-cell lymphoma).

Information brochures

In addition to advice, new patients receive the "Suppressed immune defenses in the skin" brochure.

Studies

As part of a multi-center European study, we are monitoring how many of our patients are affected by skin cancer metastases and which factors present a heightened risk. We thereby hope to identify patients with the greatest need at an early stage and support them in a targeted manner.

4.5 Special consultation in transplant psychiatry at the Department of Consultation-Liaison Psychiatry and Psychosomatic Medicine

KD Dr. med. Katja-Daniela Jordan, Department of Consultation-Liaison Psychiatry and Psychosomatic Medicine

All organ recipients are offered high-quality psychosocial assessment and care. This begins with the first evaluation and consultation and continues during the waiting period and after surgery during their hospital stay. Where possible, the same expert handles a patient's subsequent treatment. Relatives are also involved in the treatments as needed. People undergo psychosocial assessments and receive counseling before living donations are performed. We provide support in the wards as part of inpatient stays or as part of outpatient or remote consultations. Team members also took part in visits and interdisciplinary case reviews in the departments and the waiting list colloquia. At our outpatient clinic, care can also be continued for a longer period of time.

This was achieved with a very modest personnel budget thanks to excellent collaboration with numerous specialists and clinics from the University Hospital Zurich (USZ) and involved external bodies, as well as involvement in the Department of Consultation and Emergency Psychiatry led by Assistant Professor Sebastian Euler. We benefit from the possibility of getting psychiatric APNs involved in inpatient care.

Since the beginning of 2023, we have been in regular professional contact with Ms. Kathrin Keller, the psychologist from the Pediatric Nephrology and Dialysis department of the Children's Hospital Zurich (KISPI). Not only will this help us better structure the process used to transition young adults to University Hospital Zurich, but it will also improve the psychosocial assessment and counseling offered prior to making a living kidney donation to a child.

Employees are highly committed to the area of education and training. Alongside the Department of Nephrology led by Prof. Dr. med. Thomas Müller and Prof. Dr. med. Britta George, who just joined the department last fall, as well as numerous dialysis centers in and around Zurich, all 422 first-year medicine, dentistry, and chiropractics students at the University of Zurich were once again able to complete communication training in a dialysis center. This brought students into contact with patients on the waiting list for a kidney transplant, raising their awareness of psychosocial issues and other related factors. As part of the training offered for dialysis nurses in German-speaking Switzerland, a one-day course entitled "Psychosocial Aspects for Patients with Chronic Kidney Diseases" was once again held at Stadtspital Zürich Waid to offer insights into transplant-specific issues.

5 Individual transplant programs

5.1.1 Allogeneic stem cell transplantation

Prof. Dr. med. Dr. phil. Dominik Schneidawind, Department of Medical Oncology and Hematology

A total of 85 allogeneic blood stem cell transplants were performed in 2023, an increase over the previous year (2022 n = 67). The median age of patients across all entities was 58. Myeloid neoplasms remain the most common indication (n = 62), followed by lymphoma (n = 11) and acute lymphatic leukemia (n = 9).

The number of transplants with unrelated donors came to 52. 33 allogeneic blood stem cell transplants were performed with related donors, of which 14 of the donors were haploidentical relatives (children, siblings, or parents), This shows that the trend in haploidentical transplantations remains unchanged compared to previous years (2022 n = 13). Nearly all allogeneic blood stem cell transplants were carried out with G-CSF mobilized peripheral blood stem cells. Only one of our patients received bone marrow. In line with our cohort's age distribution, 76% of patients received reduced intensity conditioning.

Although the evaluation and provision of transplants from healthy, voluntary donors for other centers in Switzerland and around the world declined slightly to 57 compared to the previous year (2022 n = 64), it is still at its second-highest level in over 10 years.

5.1.2 Autologous stem cell transplantation

Prof. Dr. med. Dr. phil. Dominik Schneidawind, Department of Medical Oncology and Hematology

There were a total of 86 autologous blood stem cell transplants in 2023, a slight decrease on the previous year (2022 n = 95). This is due in part to the fact that tandem transplants play a lesser role in multiple myeloma due to newer therapies. The median age of patients across all entities was 57. The most common indication among malignancies continues to be multiple myeloma (n = 56) followed by non-Hodgkin's lymphoma (n = 13) and germ cell tumors (n = 10). Last year, high-dose chemotherapy with autologous stem cell support for the treatment of multiple sclerosis was once again performed at University Hospital Zurich (USZ) as part of the aHSCT-in-MS registry study.

5.1.3 CAR T-cell therapy

Prof. Dr. med. Dr. phil. Dominik Schneidawind, Department of Medical Oncology and Hematology

In the area of CAR T-cell therapy, the number of treatments performed in the past year remained stable (n = 29) compared to the previous year (n = 32). The distribution of the production slots, which remained limited in 2023, was still successfully regulated at national level via the MM-CAR-T-Board of Swiss Blood Stem Cell Transplantation (SBST). Since 2023, we have also been offering Liso-cel for the treatment of advanced non-Hodgkin's lymphoma. That means all commercial CAR-T cell products licensed in Switzerland are still available at USZ. Not only that, but CAR-T-cell therapy can now also be used as a second line of therapy for refractory or early-relapsed aggressive lymphomas as an alternative to high-dose chemotherapy with autologous stem cell support. In 2024, we expect Cilta-cel to be a second, highly effective product for the treatment of multiple myeloma.

5.1.4 Miscellaneous from the Center for Stem and Immune Cell Therapy

Cordula Walt, Quality Manager

The Hematology Outpatient Clinic was relocated to the RAE A hospital wing in March 2023. Operations continued as usual; collaboration with the interfaces has become well established and is working well. We collaborate very closely with the Campus Day Clinic to ensure that stem cell transplant patients continue to receive the best possible care.

The professionalization and experience of our nursing specialists – both female and male – play a key role in patient care. Working together with the Medical Service, we were able to optimize the processes and additionally ensure the quality of treatment for our patients. Promoting personal resilience seems extremely important, not only in light of the increasingly complex nursing challenges facing our special ward but also our desire to preserve the nursing profession going forward. A wide range of advanced and professional development courses in the areas of medicine and nursing was offered to all employees and proved quite popular.

Ongoing communication within the treatment team ensures that patients receive individual, tailored care and support. By embracing this approach as well as through collaboration with the Medical Service and the support of Psycho-oncology, physiotherapists, dietitians and hospital chaplains, we were able to tailor the treatment to provide each patient with the best possible care.

This generated very positive feedback for the treatment team from patients and their caregivers alike.

The first document-based interim audit of the EBMT by the JACIE accreditation body was planned for 2023. This new process, first implemented approximately two years ago, additionally safeguards quality management in JACIE-accredited centers. A questionnaire was used to audit the Center for Stem and Immune Cell Therapy last summer. The final report certifies that the Center for Stem and Immune Cell Therapy has an enormous amount of experience and expertise as well as very good quality assurance. Re-accreditation will take place as planned in 2025.

Swissmedic conducted its regular inspection over a two-day period in December. Its purpose was to review two approvals, one regarding the production and cryopreservation of compounds used for cell therapy and transplants as well as another compound used for the production and storage of blood products. When auditing the operating license, the main points of focus were as follows: quality assurance, document control, error management, apheresis, including rooms and equipment (collection of autologous blood) as well as hemovigilance. There were no critical irregularities and the final report is still pending.

5.2 Lung transplantation

PD Dr. med. Sven Hillinger, Thoracic Surgery, Dr. med. René Hage, PhD, Pneumology, Prof. Dr. med. György Lang, Thoracic Surgery

Transplant activity

Our newly established transplant team successfully performed transplants in 37 patients in 2023. This is the highest number of lung transplants in one year ever seen in Zurich. The perioperative mortality rate was 0% – also unprecedented.

We have been focusing on increasing the number of organs available for lung transplants. One of these efforts involved the revival of a clinical program for ex vivo lung perfusion (EVLP) to assess marginal lungs. This has already boosted transplant activity significantly – by approximately 20% – in less than 12 months, with most donors having suffered cardiac arrest (DCD). During the same period, a procedure referred to as the PULSE protocol was developed and implemented – also on the EVLP platform – that enables potential donor organs to be precisely evaluated and prepared after a pulmonary embolism has been diagnosed.

A particularly gentle and safe form of anesthesia was made possible for our patients during single-sided lung transplants through the use of a new ventilation technique (EVONE).

Based on our own research results, we were able to use Cytosorb to successfully counteract the cytokine storm commonly seen in donor lungs from avalanche victims.

Internationally, we were also one of the first centers to substantially extend the time between donor lung removal and implantation by introducing innovative preservation procedures in conjunction with static storage at a controlled temperature of 10°C, thereby establishing the logistical framework needed for simultaneous transplants. The technique also opened up a timeframe for preoperative desensitization in patients on the waiting list for organ donations. Based on these experiences, we were also the first center in Switzerland to use the immunoadsorption technique when performing lung transplants as a life-saving measure for highly sensitized emergency patients.

A transplant performed on the oldest transplant candidate to date (74) was also successful and the patient has been making good progress in the first few months. In addition to the conventional ISHLT criteria, especially the biological age as well as the number and severity of the comorbidities are key factors when selecting candidates. There is no upper age limit for lung transplants, although statistics show an increase in complications from the age of 65.

To remain true to the continued aspiration of being a center of excellence, an international lung transplant audit was conducted in June 2023 at the request of the Thoracic Surgery department and performed by the following external professors: Mr. Shaf Keshavjee (Toronto), Mr. Peter Jaksch (Vienna) and Mr. John-David Aubert (Lausanne). These findings were among the conclusions reached by the audit: The Zurich Lung Transplant Program has a long tradition of excellence, but it is suffering from recent changes in the team. In both surgical and pulmonary activities, a significant number of critical and strategic positions, responsibilities and priorities are focused on a single person without any structured support system in place. A second level of support (medical and non-medical) needs to be developed in order to manage the volume of work and ensure continuity. One real opportunity lies in the targeted delegation of tasks and responsibilities to this level. This explicitly requires a corresponding increase in the number of jobs. Other improvements were also suggested including an optimization related to candidate evaluations (shorter evaluations, examinations outsourced through collaborations), surveillance bronchoscopies (shorter stay, fewer antibiotics used), follow-up care concepts in collaboration with other hospitals and an improved data monitoring system. There should be no age limit when selecting candidates. Both in this regard and with regard to the allocation criteria, an effort should be made to work together with the other transplantation center to harmonize the process. A job ad was posted promptly in an attempt to address the core problem – the shortage of qualified staff – unfortunately, however, no partial positions were approved by the hospital's management. The other suggestions are being worked through, although some of which cannot be implemented due to the lack of staff. Caring for pre- and post-transplant patients is enormously time-consuming. It requires sufficient human resources capable of providing highly specialized, high-quality care – not only for the transplant volume achieved but also to enable the explicitly mentioned potential of a further increase in the number of transplants.

Medical staff

At the Department of Pulmonology, three part-time attending physicians were responsible for transplants and cystic fibrosis (PD Dr. med. Maurice Roeder 60%, Dr. med. Silvan Manuel Vesenbeckh 60%, Dr. med. René Hage, PhD 80%). In addition, there was one resident (100%) and one stand-in attending physician (Dr. med. Bahareh Mozafari 60%). Dr. med. Dominik Wilhelm Damm (100%) became attending ward physician over the course of the year.

With the help of Dr. med. Lucas Meia Hoyos, the Thoracic Surgery department successfully recruited an experienced employee to help revive and further develop the EVLP program. This team was strengthened even further by Dr. med. Ilker Iskender, who was able to contribute his experience from the Transplantation Center in Leuven, and by Dr. med. Theodoros Papatropoulos and Dr. med. Bianca Battilana, who completed a training course for this purpose in Paris. All of our colleagues have also been trained in lung biopsy procedures.

Collaboration with St. Gallen Cantonal Hospital (KSSG)

Close collaboration with the Department of Pulmonology at the Cantonal Hospital of St. Gallen (KSSG) began back in 2021. Patients were able to have their inpatient partial evaluations for lung transplants (1 week) performed at the KSSG (Prof. Dr. med. Martin Brutsche, KSSG). Additional evaluations were then carried out at USZ (1 week inpatient stay). 17 patients from Eastern Switzerland who previously underwent transplantation at USZ are receiving outpatient lung transplant follow-up care at the KSSG (Senior Consultant, Dr. med. Anna-Lena Walter, KSSG). Once a year, patients attend a lung transplant follow-up check (annual check-up) at USZ. The lung transplant patients at the KSSG are co-supervised by USZ in a consultative capacity (Attending Physician, Lung Transplantation team at USZ, 5% quota).

Collaboration between Lucerne Cantonal Hospital (LUKS) and Inselspital Bern

In 2022, preparations were made for a closer collaboration with Pulmonology at Lucerne Cantonal Hospital (LUKS) and Inselspital Bern with respect to lung transplantation follow-up care; implementation of some of the plans began in 2023. No contractually regulated framework has been finalized yet for the formal collaboration since formal aspects depend on administrative steps.

Research activities

- Various master's and dissertation projects are in progress or nearing completion.
- Continuation of the prospective cryobiopsy study to diagnose rejection. Complementary studies are being planned as a follow-up.
- In clinical research, we were able to re-evaluate the potential offered by a validated points-based system for documenting a patient's prognosis after a lung transplant involving a bridge procedure in an acute setting. Participation in national and international expert committees continued to be an important part of our academic activities, for example in the Swiss Transplant Cohort Study (STCS) and the Expert Consensus Panel of the American Association for Thoracic Surgery (AATS) in order to prepare a consensus paper for the guidelines regarding perioperative support with ECLS in lung transplants.
- The results of experiments performed on small animal transplant model platforms provided new insights in the area of organ preservation; please refer to the list of publications for more information.
- We consider the first breakthrough in the development of 3D silicone-based artificial lungs as being significant; here, we were able to create the first small-scale yet functional models in close collaboration with the ETH research group.

5.3 Liver transplantation

Prof. Dr. med. Andreas Kremer, Gastroenterology, Dr. med. Ansgar Deibel, Gastroenterology, Prof. Dr. med. José Oberholzer, Department of Visceral and Transplantation Surgery

Transplant activity

65 liver transplants were performed in Zurich in 2023 compared to a total of 136 liver transplants throughout Switzerland (44.5%), which underscores University Hospital Zurich's (USZ) positioning as a leading liver transplant center. Of these, 35 were liver transplants involving a donation after brain death (DBD), 28 involved a donation after circulatory death (DCD), and two were split liver transplants. There were 16 urgent liver transplants: Six of these were attributable to acute-on-chronic liver failure (ACLF), four were attributable to acute liver failure (ALF), two were due to primary non-function (PNF) and three were due to infectious complications of underlying liver disease and Budd Chiari syndrome. All DCD livers were routinely optimized through the use of ex vivo liver perfusion (Hypothermic Oxygenated Perfusion, HOPE). Only four patients died post-liver transplant (6.2%), making the USZ one of the best liver transplant centers in the world.

A total of 91 patients were placed on the waiting list in 2023.

Medical staff

In 2023, the liver transplant team at USZ had to be restructured after Prof. Dr. med. Beat Müllhaupt (Hepatology) went into semi-retirement and Prof. Dr. med. Philipp Dutkowski (Visceral Surgery) moved to University Hospital Basel. Prof. Dr. med. Andreas Kremer and Prof. Dr. med. José Oberholzer took over the management roles. They were still assisted by four residents and two attending physicians in the pre- and post-transplant consultations as well as by the respective inpatient teams.

One of our Transplantation Center's core tasks is to teach medical colleagues how to handle liver transplant patients. Residents from the respective departments work six-month rotations in pre- (gastroenterology only) or post-transplant consultations (gastroenterology and visceral surgery). Our colleagues also attend the weekly interdisciplinary transplant colloquia to ensure that they acquire the medical expertise needed for dealing with waiting list and transplant patients.

Collaboration with external hospitals

The smooth collaboration enjoyed with the referring hospitals to date continued seamlessly in 2023. Some of those hospitals include the Cantonal Hospital of St. Gallen and the University Hospital of Basel, which perform inpatient diagnostic examinations independently, as well as the Cantonal Hospitals of Aarau, Baden, Chur, Frauenfeld, Lucerne, Münsterlingen and Winterthur. Prof. Dr. med. Andreas Kremer attends monthly liver colloquia in person at the most frequently mentioned hospitals in order to cultivate close collaboration and smooth communication.

Activities of the research group

- In a retrospective, multi-center cohort study as part of the STCS, Dr. med. Ansgar Deibel was able to identify metamizole as a common medication that could be considered a trigger for DILI in acute liver failure. His data additionally showed that the ALFSG prognosis score and MELD score based on the listing day laboratory data were superior to the traditional Clichy and King's College listing criteria. It also showed gender-related discrepancies in post-TPL mortality in ALF patients. This study was presented at the annual meeting of the Swiss Society of Gastroenterology (SGG) and Visceral Surgery (SGVC) and is due for publication in the near future. Please also refer to the figures on the next two pages.
- In another retrospective, multi-center cohort study – also as part of the STCS – Dr. Ansgar Deibel analyzed the geographical differences in liver mortality in Switzerland and in listings for liver transplants. This study aims to uncover any supply deficits that are geographic in nature.

Study cohort

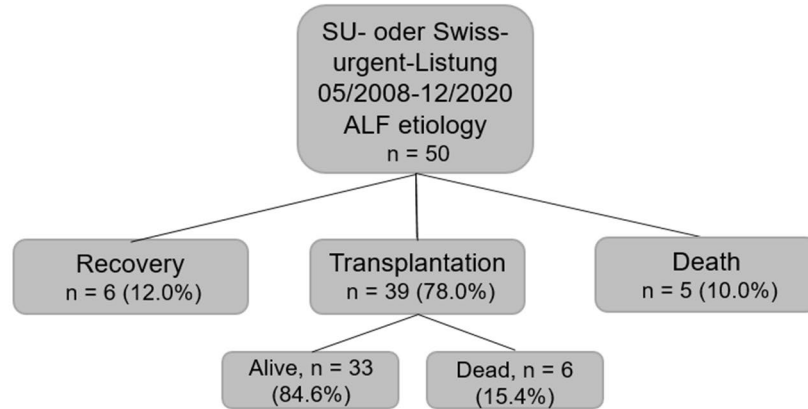


Figure 6: Super Urgent (SU) and Swiss Urgent list study cohort

Präsentation

M:F 1:2.57

Alter: 45 Jahre (18 - 70)

BMI: 24.5 (18.5 - 43.4)

Time-to-List (von Spitaleintritt): 3 Tage (0 - 35)

Time-on-List: 1 Tag (0 - 7)

Präsentation:

- Hyperakut 71 (14%)
- Akut 32 (64%)
- Subakut 8 (16%)

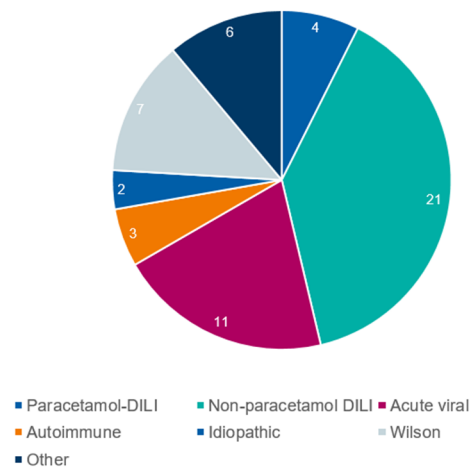


Figure 7: Presentation upon admission to hospital

Zustand am Listungstag

Hepatische Enzephalopathie

- Grad 0-2 22 (44%)
- Grad 3-4 28 (56%)

MELD: 37.5 (20-40)

Vasopressoren: 20 (40%)

Ventilator: 15 (30%)

Dialyse: 15 (30%)

Labor

- ALT 579.5 (12-13904) U/L
- Bilirubin 337 (75-655) $\mu\text{mol/l}$
- Kreatinin 120 (48-526) $\mu\text{mol/l}$
- INR 3.5 (1.9-8.0)
- Faktor V 17 (10-33) %

Figure 8: Status on the day of listing

Post-TPL Überleben

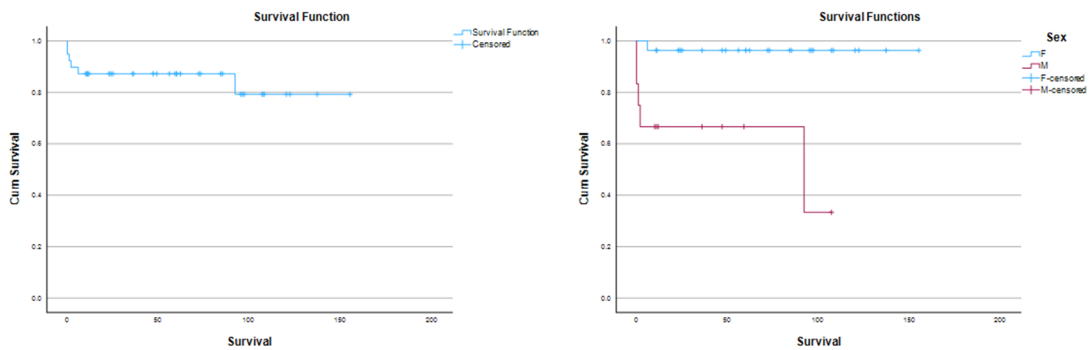


Figure 9: Post-TPL survival

5.4 Kidney transplantation

Prof. Dr. med. Thomas Müller, Nephrology, Prof. Dr. med. Thomas Schachtner, Nephrology, Dr. med. Kerstin Hübel, Nephrology and Visceral and Transplant Surgery and Dr. med. Fabian Rössler, Department of Visceral and Transplant Surgery

Last year, the Kidney Transplantation Center of the University Hospital Zurich (USZ) recorded a remarkable increase in the number of transplants. A total of 117 kidney transplants were performed, including 17 living donations and 100 post-mortem donations. This corresponds to an increase of more than 30% over the previous year. This increase is the result of a dedicated team of surgeons, nephrologists, transplant coordinators and nurses who have worked tirelessly to ensure patients' well-being, in some cases even despite reductions in staff resources. We also owe this success to our excellent collaboration with referring physicians who assist us with waiting list evaluations and by providing transplant follow-up care. Follow-up care after kidney transplants remains a key focus of our work. We have maintained our commitment to providing comprehensive and personalized follow-up care despite the increased number of transplants. Together with our referring physicians, we were able to provide long-term care to more than 1,500 kidney transplant patients in our outpatient clinics at the Campus and Circle locations.

Ongoing professional development for medical staff remains a key component of our work as a Transplantation Center. Over the past year, we have adapted our professional development program for prospective nephrologists to ensure they have an opportunity to acquire the skills and knowledge needed to achieve the highest standards in kidney transplant care. From now on, all continuing education assistants undergo a six-month rotation on campus, during which they look after newly transplanted patients in the first year following their kidney transplant in close interdisciplinary collaboration with Transplant Surgery, Transplant Immunology, Urology and transplant experts.

Our Kidney Transplantation Center has also been actively involved in research to improve the treatments we provide our patients. Over the past year, we have participated in several clinical studies focusing on new immunosuppressants, the diagnosis of rejection reactions and long-term outcomes after kidney transplants. These research activities have not only helped to provide our patients with access to innovative diagnostics and treatment methods, but have also expanded our own expertise and strengthened our reputation as a leading Transplantation Center. The results of our work have been presented at numerous national and international conferences and conventions.

Activities of the research groups

- Investigator-initiated study "The DD-cfDNA/PIRCHE-II Study": Calibrating the donor-derived cell-free DNA (DD-cfDNA) baseline in the first year after kidney transplantation to the Predicted Indirectly Recognizable HLA-Epitopes (PIRCHE-II) scores and assessing the risk for rejection and the development of de novo DSA.
- Investigator-initiated study "HistoMol Study": Assessing the potential of the molecular diagnosis of kidney allograft biopsies to improve post-transplant patient care.
- Study within the scope of the Swiss Transplant Cohort Study (STCS): Differences between the Observed and Expected Serum Creatinine Range after Kidney Transplantation.
- Study center for the multi-center, observational study "The ATAGC cfDNA-MMDx study ("Trifecta")": Calibrating circulating donor-derived cell-free DNA against molecular biopsy assessments.
- Study center for the randomised, double-blind, multi-center phase III study "IMAGINE Study": Clazakizumab for the Treatment of Chronic Active Antibody Mediated Rejection in Kidney Transplant Recipients.
- **Swisstolerance.ch** study: Induction of immunological tolerance through a combined kidney and stem cell transplant.
- Various master's and dissertation projects.

5.5 Pancreas transplantation

Dr. med. Fabian Rössler, Department of Visceral and Transplant Surgery, Prof. Dr. med. José Oberholzer, Department of Visceral and Transplant Surgery

Eight pancreatic transplants were performed in 2023. These were all performed as simultaneous pancreas and kidney transplants (SPK) in recipients with long-term type 1 diabetes and chronic kidney disease. All eight SPKs were primary transplants, seven of which were from DBD donors and one was a DCD SPK. This represents a significant year-over-year increase in the figures. The results of these combined pancreas and kidney transplants were excellent, with the exception of a surgical graft loss. Switzerland's first pancreatic transplant from a DCD donor was performed following normothermic regional perfusion; it achieved excellent results with very good graft function in both organs. Given the increase in the number of transplants from DCD pancreatic donors, particularly following normothermic regional perfusion, potential also exists for an increase in the number of pancreatic transplant cases in the years to come.

5.6 Islet cell transplantation

Prof. Dr. med. José Oberholzer, Department of Visceral and Transplant Surgery, Prof. Dr. med. Roger Lehmann, Endocrinology and Diabetology

No islet cell transplants were performed in 2023. We continue to collaborate with Geneva University Hospital.

5.7 Heart transplantation

Prof. Dr. med. Markus Johannes Wilhelm, Senior Attending Physician, Department of Cardiac Surgery,
Prof. Dr. med. Andreas Flammer, Senior Attending Physician, Department of Cardiology

After an already significant increase in the number of heart transplants in 2022, 2023 proved to be yet another extremely successful year with 19 transplants. One main reason for this increase was the introduction of the Organ Care System (OCS) (Figure 10). With this system, donated organs can be transported outside the donor for longer periods, which has made it possible to accept more organ offers from abroad. The OCS also enables donated hearts to be transplanted after the donor has suffered cardiac arrest. This type of heart transplant was carried out for the first time in Switzerland in 2023 at University Hospital Zurich (USZ) following intensive preparatory work in Swisstransplant Heart Working Group. Five of the 19 heart transplants at USZ were performed using this method in 2023. Of the 19 heart transplant patients, a cardiac assist device had been used on five (26%) as a bridge to the heart transplant.

Assist devices are becoming increasingly important due to the organ shortage. In 2023, a left ventricular assist device was implanted in 11 patients, six more than in the previous year.

In 2023, 125 implantations of ECMO (ExtraCorporeal Membrane Oxygenation) and ECLS (ExtraCorporeal Life Support) were performed and used for therapy for refractory acute pulmonary or cardiovascular failure (Figure 11). Approximately 82% of the implants were performed as ECLS in cardiogenic shock and 18% as ECMO in lung failure. There were 35 transport operations in 2023, which means that 28% of ECLS/ECMO implants were performed in external hospitals.

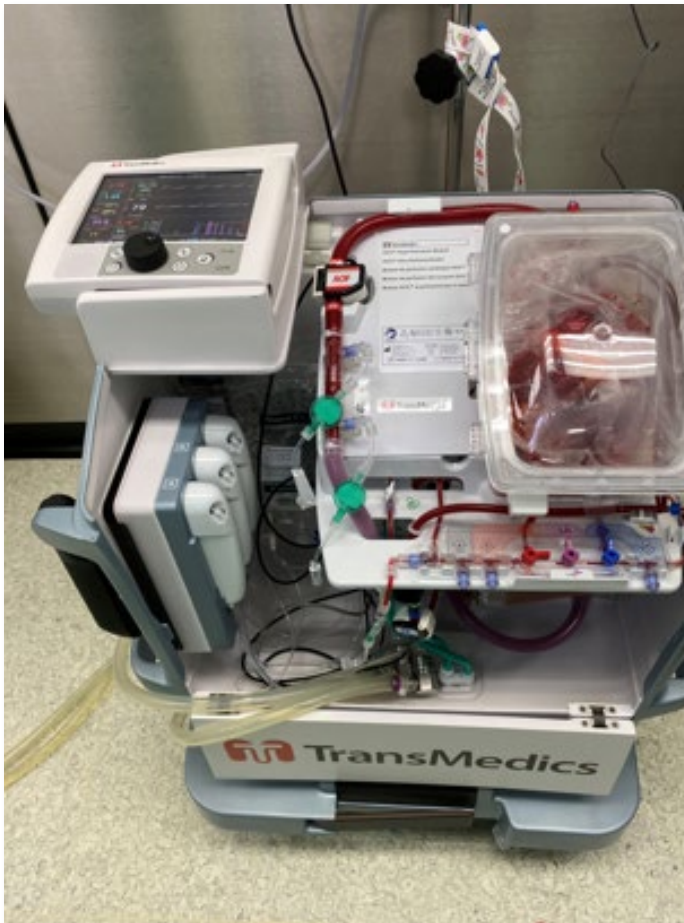


Figure 10: The Organ Care System (OCS) (TransMedics, Inc., Andover, MA, USA)

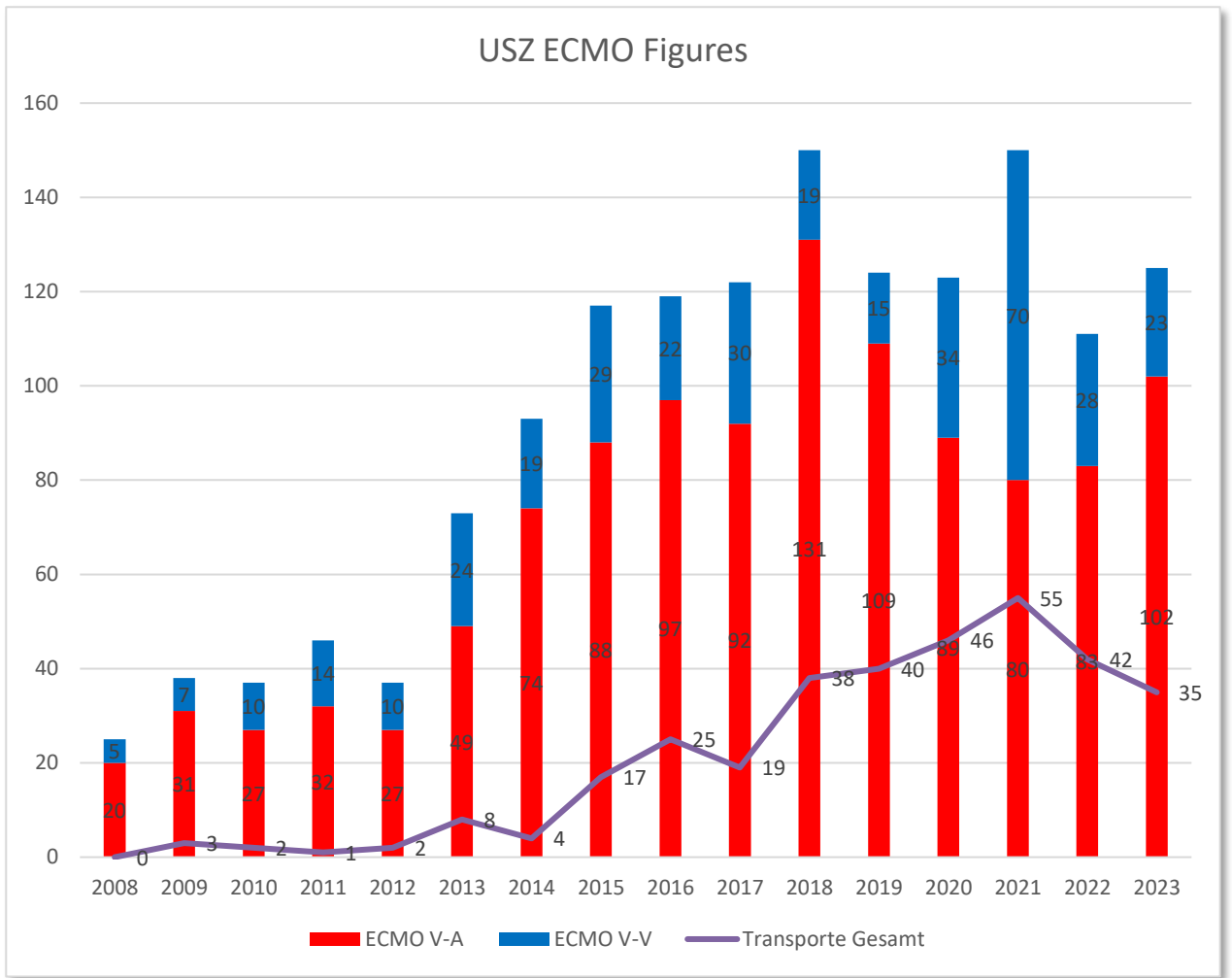


Figure 11: Number of ECLS/ECMO implants from 2008 to 2023

6 Appendices

6.1 Staffing structure of the Transplantation Center 2023

	Board of Directors	Board of Trustees
Management	Head Prof. Dr. med. Nicolas Müller	Chairman Prof. Dr. med. Frank Ruschitzka
Heart	Prof. Dr. med. Andreas Flammer Prof. Dr. med. Markus Wilhelm	Prof. Dr. med. Frank Ruschitzka Prof. Dr. med. Omer Dzemali
Lungs	Dr. med. René Hage Prof. Dr. med. György Lang / Assistant Professor Sven Hillinger	Assistant Professor Macé Schuurmans Prof. Dr. med. Isabelle Schmitt- Opitz
Liver	Prof. Dr. med. Philipp Dutkowski vacant	Prof. Dr. med. Beat Müllhaupt Prof. Dr. med. Pierre-Alain Cla- vien
Kidney	Prof. Dr. med. Thomas Müller Dr. med. Fabian Rössler	Prof. Dr. med. Thomas Müller Prof. Dr. med. Pierre-Alain Cla- vien
Pancreas and islet cells	Prof. Dr. med. Roger Lehmann Dr. med. Fabian Rössler	Prof. Dr. med. Felix Beuschlein Prof. Dr. med. Pierre-Alain Cla- vien
Small intestinal and multivis- ceral transplantation	Prof. Dr. med. Philipp Dutkowski	Prof. Dr. med. Pierre-Alain Cla- vien
Stem cells	Prof. Dr. med. Dr. phil. Dominik Schneidawind	Prof. Dr. med. Markus Manz
Consultation services	Prof. Dr. med. Nicolas Müller, Infectiol- ogy Dr. med. Mirjam Nägeli, Dermatology KD Katja-Daniela Jordan, Psychiatry and Psychosomatics Consultation	Prof. Dr. med. Michael Weller
Anesthesiology	Dr. med. Rolf Schüpbach	Prof. Dr. med. Martin Schläpfer
Transplant immunology labora- tory	Dr. med. Jakob Nilsson, Ph. D.	Prof. Dr. med. Onur Boyman
Care	Helen Ziegler	Stephan Schärer
Intensive care	Assistant Professor Stephanie Klinzing	Prof. Dr. med. Reto Schüpbach
Transplant coordination	Stefanie Schiess	
Transplant ward E, EAST III	Dr. med. Kerstin Hübel	
Research	Ph. D. Lucia Bautista Borrego	
Quality Management	Ursula Schäfer	
Department Manager	Karl-Heinz Heidenreich	
DCA (seat without voting rights)	Assistant Professor Matthias Hilty / Dr. med. Anisa Hana	
Dean		Prof. Dr. med. Frank J. Rühli

International Advisory Board	
Heart	Prof. Dr. med. Mandeep R. Mehra, USA
Lungs	Prof. Dr. med. John Dark, UK
Liver	vacant
Kidney	Prof. Dr. med. Christophe Legendre, France
Pancreas and islet cells	Prof. Dr. med. Eelco de Koning, Netherlands
Stem cells	Prof. Dr. med. Ernst Holler, Germany
Anesthesiology and intensive care	Univ. Prof. Dr. med. Michael Hiesmayr, Austria

Referring physicians at the Transplantation Center		
St. Gallen	Cantonal Hospital	Dr. Dr. med. David Semela
Zurich	Clinic in the Park	Dr. med. Michael Möddel
Zurich	City dialysis	Dr. med. Cicvara / Dr. med. Küper / Prof. Dr. med. Nilufar Mohebbi
Baden	Baden Cantonal Hospital	Assistant Professor Harald Seeger
Chur	Chur Cantonal Hospital	Dr. med. Reto Venzin
Winterthur	Winterthur Cantonal Hospital	Dr. med. Thomas Kistler
Lachen	Lachen Hospital	Dr. med. Kneubühl / Dr. med. Schorn
Männedorf	Männedorf Hospital	Dr. med. Daniela Schiesser
Glarus	Glarus Nephrology	Dr. med. Georgalis
Muri	Muri Hospital	Dr. med. Rahel Pfammatter
Zug		Dr. med. Varga
Wetzikon	Wetzikon Hospital	Dr. med. Etter
	Seespital	Dr. med. Matheis
Davos		Dr. med. Christina Venzin
Uster		Dr. med. Alf Corsenca
Zurich	Waid Hospital	Dr. med. Ambühl / Dr. med. Johannes Trachsler
Locarno		Prof. Dr. med. Pietro Cippà
Bellinzona	Ospedale San Giovanni	Dr. med. Lorenzo Berwert
Lugano		Prof. Dr. med. Pietro Cippà
Hochfelden	Dialysis Practice	Dr. med. Christoph Wahl
Uznach	Hospital	Dr. med. Matthias Neusser
Chiasso	MedQualitas	Dr. med. Claudio Cereghetti
Urdorf		Dr. med. Jan Zaruba
Zollikerberg	Zollikerberg Hospital	Dr. med. Jörg Bleisch
Frauenfeld		Dr. med. Stefan Flury
Zurich	Practice	Dr. med. Michael Möddel
Zurich	Children's Hospital Zurich	Dr. med. Sparta
Aarau	KS Aarau	Prof. Dr. med. Stephan Segerer
Lucerne	Lucerne Cantonal Hospital	Dr. med. Odermatt
Schaffhausen	Schaffhausen Cantonal Hos-	Dr. med. Marco Miozzari
Schlieren	NephroLimmat	Dr. med. Ulrike Raff

6.2 Transplant activities 2014 – 2023

Organ	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Herz total	16	14	10	17	16	11	11	11	14	19
<i>davon DCD</i>	0	0	0	0	0	0	0	0	0	5
<i>davon DBD</i>	16	14	10	17	16	11	11	11	14	14
- inklusive Herz und Niere	0	0	0	1	0	0	0	0	0	0
Lunge total	32	31	23	14	19	17	24	24	31	37
<i>davon DCD</i>	5	5	3	2	3	4	5	7	9	15
<i>davon DBD</i>	27	26	20	12	16	13	19	17	22	22
- inklusive Lunge und Herz	1	0	0	0	0	0	0	0	0	0
Leber total	43	59	52	64	54	64	52	60	52	65
<i>davon Lebendspende</i>	3	2	8	5	4	1	3	2	3	0
- inklusive Dominospende	1	0	1	0	0	0	0	0	0	0
<i>davon DCD</i>	12	12	6	21	12	22	9	22	26	28
<i>davon DBD</i>	28	45	38	38	38	41	40	36	23	37
- inklusive Leber und Niere	1	1	4	1	1	2	2	0	0	0
- inklusive Leber und Inseln	0	0	1	0	0	0	0	0	0	0
- inklusive Splittleber	0	0	0	0	0	0	0	0	0	2
- inklusive Leber und Multiviszeral	0	0	0	0	0	0	0	1	0	0
Niere total	84	96	88	104	100	91	97	85	89	117
<i>davon Lebendspende</i>	22	23	22	23	30	20	21	25	25	17
<i>davon DCD</i>	11	6	9	18	4	23	21	14	19	44
<i>davon DBD</i>	51	67	57	63	66	48	55	46	45	56
- inklusive Niere und Leber	1	1	4	1	1	2	2	0	0	0
- inklusive Niere und Inseln	1	1	1	3	2	1	0	0	0	0
- inklusive Niere und Pankreas	5	3	4	4	5	8	8	7	4	8
- inklusive Niere und Herz	0	0	0	1	0	0	0	0	0	0
Pankreas total	7	3	4	4	5	8	8	9	4	8
<i>davon DCD</i>	0	0	0	0	0	0	1	1	0	1
<i>davon DBD</i>	7	3	4	4	5	8	7	8	4	7
- inklusive Pankreas und Niere	5	3	4	4	5	8	8	7	4	8
- inklusive Pankreas und Multiviszeral	0	0	0	0	0	0	0	1	0	0
- inklusive Niere und Herz	0	0	0	1	0	0	0	0	0	0
Inseln total	6	3	6	5	2	1	0	0	0	0
<i>davon DBD</i>	6	3	6	5	2	1	0	0	0	0
- inklusive Inseln und Niere	1	1	1	3	2	1	0	0	0	0
- inklusive Niere und Leber	0	0	1	0	0	0	0	0	0	0
Dünndarm total	0	0	0	0	0	0	0	1	0	0
<i>davon DBD</i>	0	0	0	0	0	0	0	1	0	0
- inklusive Multiviszeral	0	0	0	0	0	0	0	1	0	0
Stammzellen total	151	150	150	148	174	168	170	160	162	171
<i>davon autolog</i>	98	92	94	93	107	100	88	90	95	86
<i>davon allogene</i>	53	58	56	55	67	68	82	70	67	85
Multiorganspenden	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Spender USZ + Netzwerk	26	34	27	31	26	43	38	47	47	47
<i>davon Spender aus USZ</i>	17	24	14	23	17	33	26	36	33	33
- inklusive DCD	12	12	4	17	5	16	11	18	17	25
<i>davon Spender aus ZH Netzwerk</i>	9	10	13	8	9	10	12	11	14	14

6.3 Outcome of organ transplants

Results for all centers nationwide have been published since 2013 in accordance with the Transplantation Act and Ordinance. The "STCS Annual Report is publicly available at <http://www.stcs.ch/>.

6.4 International Advisory Board (IAB) Meeting 2023

Prof. Dr. med. Nicolas Müller, Head of the Transplantation Center

International Advisory Board Meeting 2023

Present: Strategic board

Andreas Flammer (AF), Rolf Schüpbach (RS), Martin Schläpfer (MS), José Oberholzer (JO), Omer Dzemali (OD), Markus Manz (MM), Thomas Müller (TM), Isabelle Schmitt-Opitz (IS), Reto Schüpbach (RS), György Lang (GL), Macé Schuurmans (MS), Nicolas Müller (NM) (*excused: Frank Ruschitzka (Head); Michael Weller, Frank Rühli, Felix Beuschlein, Stephan Schärer, Onur Boyman, Donat Spahn, Beat Müllhaupt, Marco Zalunardo*).

International Advisory Board

Mandeep Mehra (via ZOOM), John Dark (via ZOOM), Ernst Holler (in person), Michael Hiesmayr (via ZOOM) Eelco de Koning (*excused: Christophe Legendre*).

NM reports on the donor development (DCA report) and on the annual reporting of the Swiss Transplant Cohort Study, including crude survival curves.

Each program reports on its achievements and challenges.

The discussion focuses on specific aspects of the respective programs, presented by the heads, and remarks by the international advisors.

6.5 Scientific publications 2023

Heart

1. Schmiady MO, Bec LP, Shallah M, Flammer AJ, Vogt PR, Wilhelm MJ.
Long-distance donor heart procurement using an innovative cold static storage system.
Perfusion 2023 (March); online ahead of print: DOI: 10.1177/02676591231163018, PMID: 36905360.
2. Thut TLZ, Petrou A, Meboldt M, Schmid Daners M, Wilhelm MJ.
The impact of right ventricular hemodynamics on the performance of a left ventricular assist device in a numerical simulation model.
Biomed Tech (Berl). Apr. 27, 2023;68(5):503-510.
3. Schmiady MO, Jashari R, Lenherr R, Regenscheit S, Hitendu D, Wendt M, Schiess S, Schweiger M, Hofmann M, Sromicki J, Flammer A, Wilhelm MJ, Cesnjevar R, Carrel T, Vogt PR, Mestres CA.
How to counteract the lack of donor tissue in cardiac surgery? Initial experiences with a newly established homograft procurement program.
Cell Tissue Bank Apr. 25, 2023;1-10. <https://doi.org/10.1007/s10561-023-10087-z>.
4. Neumann E, Sahli SD, Kaserer A, Braun J, Spahn MA, Aser R, Spahn DR, Wilhelm MJ.
Predictors associated with mortality of veno-venous extracorporeal membrane oxygenation therapy.
J Thorac Dis 2023;15(5):2389-2401.
5. Braun J, Sahli SD, Spahn DR, Röder D, Neb H, Lotz G, Aser R, Wilhelm MJ, Kaserer A.
Predicting Survival for Veno-Arterial ECMO Using Conditional Inference Trees-A Multicenter Study.
J Clin Med 2023;12(19):6243. DOI: 10.3390/jcm12196243.
6. McDonagh TA, Metra M, Adamo M, Gardner RS, Baumbach A, Böhm M, Burri H, Butler J, Čelutkienė J, Chioncel O, Cleland JGF, Crespo-Leiro MG, Farmakis D, Gilard M, Heymans S, Hoes AW, Jaarsma T, Jankowska EA, Lainscak M, Lam CSP, Lyon AR, McMurray JJV, Mebazaa A, Mindham R, Muneretto C, Francesco Piepoli M, Price S, Rosano GMC, Ruschitzka F, Skibelund AK; ESC Scientific Document Group.
2023 Focused Update of the 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure.
Eur Heart J. Oct. 1, 2023;44(37):3627-3639. PMID: 37622666.

7. Gasparovic H, Jakus N, Brugts JJ, Pouleur AC, Timmermans P, Rubiś P, Gaizauskas E, Van Craenenbroeck EM, Barge-Caballero E, Grundmann S, Paolillo S, D'Amario D, Braun OÖ, Meyns B, Droogne W, Wierzbicki K, Holcman K, Planinc I, Lovric D, Flammer AJ, Petricevic M, Biocina B, Lund LH, Milicic D, Ruschitzka F, Cikes M.
Impact of progressive aortic regurgitation on outcomes after left ventricular assist device implantation.
Heart Vessels. Dec. 2022;37(12):1985-1994. PMID: 35737119.
8. Radhoe SP, Veenis JF, Jakus N, Timmermans P, Pouleur AC, Rubiś P, Van Craenenbroeck EM, Gaizauskas E, Barge-Caballero E, Paolillo S, Grundmann S, D'Amario D, Braun OÖ, Gkouziouta A, Planinc I, Samardzic J, Meyns B, Droogne W, Wierzbicki K, Holcman K, Flammer AJ, Gasparovic H, Biocina B, Lund LH, Milicic D, Ruschitzka F, Cikes M, Brugts JJ.
How does age affect outcomes after left ventricular assist device implantation: results from the PCHF-VAD registry.
ESC Heart Fail. Apr. 2023;10 (2):884-894. PMID: 36460627.
9. Radhoe SP, Jakus N, Veenis JF, Timmermans P, Pouleur AC, Rubiś P, Van Craenenbroeck EM, Gaizauskas E, Barge-Caballero E, Paolillo S, Grundmann S, D'Amario D, Braun OÖ, Gkouziouta A, Planinc I, Macek JL, Meyns B, Droogne W, Wierzbicki K, Holcman K, Flammer AJ, Gasparovic H, Biocina B, Milicic D, Lund LH, Ruschitzka F, Brugts JJ, Cikes M.
Sex-related differences in left ventricular assist device utilization and outcomes: results from the PCHF-VAD registry.
ESC Heart Fail. Apr. 2023;10 (2):1054-1065. DOI: 10.1002/ehf2.14261. Epub Dec. 22, 2022 PMID: 36547014 Free PMC article.
10. Schmiady MO, Bec LP, Shallah M, Flammer AJ, Vogt PR, Wilhelm MJ.
Long-distance donor heart procurement using an innovative cold static storage system.
Perfusion. Mar. 11, 2023:2676591231163018. PMID: 36905360 Free article.
11. Schmiady MO, Jashari R, Lenherr R, Regenscheit S, Hitendu D, Wendt M, Schiess S, Schweiger M, Hofmann M, Sromicki J, Flammer A, Wilhelm MJ, Cesnjevar R, Carrel T, Vogt PR, Mestres CA.
How to counteract the lack of donor tissue in cardiac surgery? Initial experiences with a newly established homograft procurement program.
Cell Tissue Bank. Mar. 2024;25(1):1-10. PMID: 37097383 Free PMC article.

Immunology (HLA laboratory)

12. Castrezana-Lopez K, Malchow R, Nilsson J, Kokkonen SM, Rho E, von Moos S, Mueller TF, Schachtner T.
Association between PIRCHE-II scores and de novo allosensitization after reduction of immunosuppression during SARS-CoV-2 infection in kidney transplant recipients.
Transplant Infectious Disease. Apr. 2023;25(2):e14052.
13. Yamada Y, Nguyen TT, Impellizzieri D, Mineura K, Shibuya R, Gomariz A, Haberecker M, Nilsson J, Nombela-Arrieta C, Junggraithmayr W, Boyman O.
Biased IL-2 signals induce Foxp3-rich pulmonary lymphoid structures and facilitate long-term lung allograft acceptance in mice.
Nature Communications. Mar. 13, 2023;14(1):1383.
14. de Rougemont O, Deng Y, Frischknecht L, Wehmeier C, Villard J, Ferrari-Lacraz S, Golshayan D, Gannagé M, Binet I, Wirthmueller U, Sidler D, Schachtner T, Schaub S, Nilsson J.
Donation type and the effect of pre-transplant donor specific antibodies – Data from the Swiss Transplant Cohort Study.
Front. Immunol. Feb. 15, 2023;14:1104371.

Infectiology

15. Walti LN, Mugglin C, Mombelli M, Manuel O, Hirsch HH, Khanna N, Mueller NJ, Berger C, Boggian K, Garzoni C, Neofytos D, van Delden C, Mausezahl M, Hirzel C, Swiss Transplant Cohort S.
Vaccine-Preventable Infections Among Solid Organ Transplant Recipients in Switzerland.
JAMA Netw Open. 2023;6(4):e2310687. DOI: 10.1001/jamanetworkopen.2023.10687.
16. Teh BW, Mikulska M, Mueller NJ, Slavin MA.
Goals to score: The need for a minimum reporting dataset in studies of infection events in immunocompromised patients.
Transpl Infect Dis. 2023:e14154. DOI: 10.1111/tid.14154.
17. Teh BW, Mikulska M, Averbuch D, de la Camara R, Hirsch HH, Akova M, Ostrosky-Zeichner L, Baddley JW, Tan BH, Mularoni A, Subramanian AK, La Hoz RM, Marinelli T, Boan P, Aguado JM, Grossi PA, Maertens J, Mueller NJ, Slavin MA.
Consensus position statement on advancing the standardised reporting of infection events in immunocompromised patients.
Lancet Infect Dis. 2023. DOI: 10.1016/S1473-3099(23)00377-8.
18. Schreiber PW, Hoessly LD, Boggian K, Neofytos D, van Delden C, Egli A, Dickenmann M, Hirzel C, Manuel O, Koller M, Rossi S, Banz V, Schmied B, Guerke L, Matter M, de Rougemont O, Bonani M, Golshayan D, Schnyder A, Sidler D, Haidar F, Kuster SP, Stampf S, Mueller NJ, Swiss Transplant Cohort S.
Surgical site infections after kidney transplantation are independently associated with graft loss.
Am J Transplant. 2023. DOI: 10.1016/j.ajt.2023.11.013.
19. Sava M, Battig V, Gerull S, Passweg JR, Khanna N, Garzoni C, Gerber B, Mueller NJ, Schanz U, Berger C, Chalandon Y, van Delden C, Neofytos D, Stampf S, Franzeck FC, Weisser M, Swiss Transplant Cohort S.
Bloodstream infections in allogeneic haematopoietic cell recipients from the Swiss Transplant Cohort Study: trends of causative pathogens and resistance rates.
Bone Marrow Transplant. 2023;58(1):115-8. DOI: 10.1038/s41409-022-01851-y.
20. Reinhold I, Teasca L, Rodriguez ER, Berney T, Mueller NJ, Hilty M, Andermatt R, Saro F, Dutkowski P, Mullhaupt B, van Delden C, Swiss Transplant Cohort S.
Donor-derived fulminant herpes simplex virus hepatitis after liver transplantation: Two cases and review of literature.
Transpl Infect Dis. 2023;25(4):e14080. DOI: 10.1111/tid.14080.
21. Ragozzino S, Mueller NJ, Neofytos D, Passweg J, Muller A, Medinger M, Van Delden C, Masouridi-Levrat S, Chalandon Y, Tschudin-Sutter S, Khanna N, Swiss Transplant Cohort S.
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Bone Marrow Transplant. 2023. DOI: 10.1038/s41409-023-02157-3.
22. Neofytos D, Stampf S, Hoessly LD, D'Asaro M, Tang GN, Boggian K, Hirzel C, Khanna N, Manuel O, Mueller NJ, Van Delden C, Swiss Transplant Cohort S.
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23. Mueller NJ.
Vaccine-preventable disease after transplantation: A missed opportunity.
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24. Mombelli M, Neofytos D, Huynh-Do U, Sanchez-Cespedes J, Stampf S, Golshayan D, Dahdal S, Stirnimann G, Schnyder A, Garzoni C, Venzin RM, Magenta L, Schonenberger M, Walti L, Hirzel C, Munting A, Dickenmann M, Koller M, Aubert JD, Steiger J, Pascual M, Mueller TF, Schuurmans M, Berger C, Binet I, Villard J, Mueller NJ, Egli A, Cordero E, van Delden C, Manuel O, Swiss Transplant Cohort S.
Immunogenicity of high-dose vs. MF59-adjuvanted vs. standard influenza vaccine in solid organ transplant recipients: The STOP-FLU trial.
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Risk factors for non-tuberculous mycobacteria infections in solid organ transplant recipients: A Multinational Case-Control Study.
Clin Infect Dis. 2023;76(3):e995-e1003. DOI: 10.1093/cid/ciac608.
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Author's reply to "Which trial do we need? Culture of preservation fluid in abdominal organ transplant recipients".
Clin Microbiol Infect. 2023;29(9):1204. DOI: 10.1016/j.cmi.2023.06.019.
27. Manuel O, Laager M, Hirzel C, Neofytos D, Walti LN, Hoenger G, Binet I, Schnyder A, Stampf S, Koller M, Mombelli M, Kim MJ, Hoffmann M, Koenig K, Hess C, Burgener AV, Cippa PE, Hubel K, Mueller TF, Sidler D, Dahdal S, Suter-Riniker F, Villard J, Zbinden A, Pantaleo G, Semmo N, Hadaya K, Enriquez N, Meylan PR, Froissart M, Golshayan D, Fehr T, Huynh-Do U, Pascual M, Van Delden C, Hirsch HH, Juni P, Mueller NJ, Swiss Transplant Cohort S.
Immune monitoring-guided vs fixed duration of antiviral prophylaxis against cytomegalovirus in solid-organ transplant recipients. A Multicenter, Randomized Clinical Trial.
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28. Hosseini-Moghaddam SM, Kothari S, Humar A, Albasata H, Yetmar ZA, Razonable RR, Neofytos D, D'Asaro M, Boggian K, Hirzel C, Khanna N, Manuel O, Mueller NJ, Imlay H, Kabbani D, Tyagi V, Smibert OC, Nasra M, Fontana L, Obeid KM, Apostolopoulou A, Zhang SX, Permpalung N, Alhatimi H, Silverman MS, Guo H, Rogers BA, MacKenzie E, Pisano J, Gioia F, Rapi L, Prasad GVR, Banegas M, Alonso CD, Doss K, Rakita RM, Fishman JA.
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Antibody Response After Third Vaccination With mRNA-1273 or BNT162b2: Extension of a Randomized Controlled SARS-CoV-2 Noninferiority Vaccine Trial in Patients With Different Levels of Immunosuppression (COVERALL-2).
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Liver

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6.6 Transplantation Awards 2023

In November 2023, the Zurich Transplantation Center awards were presented for the thirteenth time during the fall symposium. The prizes were once again generously sponsored by Astellas Pharma and were presented by Dr. med. Mirjam Nägeli and Prof. Dr. med. Markus Wilhelm, both members of the Board of Directors' Awards Committee. Prizes were awarded for an experimental research study and a clinical trial as well as the award of merit.

Excellence in Patient Care

Prof. Dr. med. Nilufar Mohebbi and Dr. med. Alexander Ritter:

“Sodium bicarbonate for kidney transplant recipients with metabolic acidosis in Switzerland: a multicentre, randomised, single-blind, placebo-controlled, phase 3 trial”.



Figure 12: Award presented to Prof. Dr. med. Nilufar Mohebbi and Dr. med. Alexander Ritter

Experimental Research Prize

Prof. Dr. med. Chiara Magnani

“Anti-CD117 CAR T cells incorporating a safety switch eradicate human acute myeloid leukemia and hematopoietic stem cells”.



Figure 13: Award presented to Prof. Dr. med. Chiara Magnani

Achievement Award

Surgical and anesthesiological nursing staff of the F operating rooms (Cardiac, Thoracic and Visceral and Transplantation surgery).



Figure 14: Award presented to the surgical and anesthesiological nursing staff of the F operating rooms (Cardiac, Thoracic and Visceral and Transplantation surgery)

Lifetime Achievement Award
Prof. Dr. med. Thomas Müller



Figure 15: Award presented to Prof. Dr. med. Thomas Müller



Figure 16: Presentation of the farewell gift to Prof. Dr. med. Thomas Müller

17. Annual Symposium of the University Hospital Zurich Transplant Center

Humoral and cellular rejection in 2023: prophylaxis and intervention – a journey across all programs

Symposium for referring physicians and employees

Friday the 17th of November 2023, 13.30 - 18.00

Great Lecture Hall East, University Hospital Zurich

Zeit	Thema	
13.30	Welcome and opening address	Nawid Khaladj
13.40	Opening remarks	Nicolas Müller
13.45	Annual report	Nicolas Müller
Humoral and cellular rejection: prophylaxis and intervention – a journey across all programs		Chair: Thomas Müller
14.05	The view of the immunologists	Jakob Nilsson
14.25	Kidney & Pancreas	Thomas Schachtner
14.45	Heart	Michelle Frank
15.05 Coffee break		
15.45	Transplantation Awards Zurich Transplantation Center	Markus Wilhelm
Humoral and cellular rejection: prophylaxis and intervention – a journey across all programs		Chair: Dominik Schneidawind
16.00	Alloimmune risk stratification of long-term liver transplant recipients	Julien Vionnet (online)
16.30	Adherence in organ transplantation - the fifth vital sign?	Marcel Nöhre
17.00	Challenges of Rejection in Lung Transplantation: Insights into Prevention and Therapeutic Approaches	René Hage
17.30	Haematopoietic stem cell transplantation: Molecular imaging of alloreactive responses in transplantation	Federico Simonetta
18.00	Closing remarks	Nicolas Müller
	Apéro	

Chairs and Speakers

Michelle Frank, Dr.
Senior Physician
Department of Cardiology
University Hospital Zurich

Nawid Khaladj, Prof. Dr. MBA, MLaw,
Medical Co-Director QSB
University Hospital Zurich

Thomas Müller, Prof. Dr.
Vice Head, Transplantation Center
Director of Department a.i. Department of
Nephrology
University Hospital Zurich

Mariel Nöhre, PD Dr.
Specialist for Psychosomatic Medicine and
Psychotherapy
Hannover Medical School

Dominik Schneidawind, Prof. Dr.
Senior Attending Physician
Department of Medical Oncology and Haematology
Clinic
University Hospital Zurich

Julien Vionnet, Dr.
Associate Physician, PD and MER Clin
Transplantation Center /
Service of Gastroenterology and Hepatology
CHUV, Lausanne

René Hage, MD PhD
Senior Physician
Department of Pulmonology
University Hospital Zurich

Nicolas Müller, Prof. Dr.
Head Transplantation Center
Senior Attending Physician Department of Infectious
Diseases and Hospital Epidemiology
University Hospital Zurich

Jakob Nilsson, Dr.
Head, Laboratory for Transplantation Immunology
Senior Attending Physician
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Thomas Schachtner, PD Dr.
Head, Laboratory for Transplantation Immunology
Attending Physician
Department of Nephrology
University Hospital Zurich

Federico Simonetta, Dr.
Senior Attending Physician
Division of Hematology, Department of Oncology,
Geneva University Hospitals
Translational Research Center for Oncohematology,
University of Geneva

Markus Johannes Wilhelm, Prof. Dr.
Senior Attending Physician
Department of Cardiac Surgery
University Hospital Zurich



When

Friday, 17.11.2023
13.30 -18.00

Sign up for on-site or online

[17th Annual Symposium of the University Hospital Zurich Transplant Center – USZ](#)

Location

University Hospital of Zurich
Great Lecture Hall East
Gloriastrasse 29 / B10
8091 Zürich

Organization and Contact

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Programm

Datum	Thema	Referent	Affiliation	Host
27.02.2023	Update CMV Therapie	Nicolas Müller	USZ	Nicolas Müller
24.03.2023 (Friday)	Special seminar: Update on lung transplantation Brompton Grand Rounds, co-hosting with the Department of Thoracic Surgery, USZ	Dirk van Raemdonck	University Hospitals Leuven	University Hospital Zurich and Royal Brompton
24.04.2023	Organhandel	Thomas Müller	USZ	-
22.05.2023	Spezialisierte Pflegeberatung von Patient*innen nach Herz-, Nieren- und Lebertransplantation	(Andrea Pfister Koch (Leber-TPL), Maria Dammann (Nieren-TPL) und Irene Stalder-Ochsner (Herz-TPL))	USZ	Nicolas Müller

19.06.2023	State of the Art in Lung Transplantation	Prof. Shaf Keshavjee, M.D., F.R.C.S.C	Chief of Innovation, UHN, Director, Toronto Lung Transplant Program Toronto, General Hospital Toronto, Ontario, Canada	Isabelle Schmitt-Opitz
26.06.2023	Thrombotische Mikroangiopathie nach Stammzelltransplantation (TA-TMA)	Dominik Schneidawind	USZ	Nicolas Müller
25.09.2023	Whole-genome sequencing Analyse von Burkholderia cenocepacia-Stämmen in CF-Patienten: Hinweis für eine mögliche Übertragung?	PD Dr. Andrea Zbinden Cipolat	Institut für Mikrobiologie, Universität Zürich	Nicolas Müller
27.11.2023	Update Swisstolerance	Kerstin Hübel	USZ	Thomas Müller

Organisation

PD Dr. Sven Hillinger
 Prof. Dr. Roger Lehmann
 Prof. Dr. Nicolas Müller
 Prof. Dr. Thomas Müller

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