USZ Universitäts Spital Zürich

Annual Report 2020

Transplantation Center University Hospital Zurich

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Contents

1 The Transplantation Center in its 14th year of operation

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

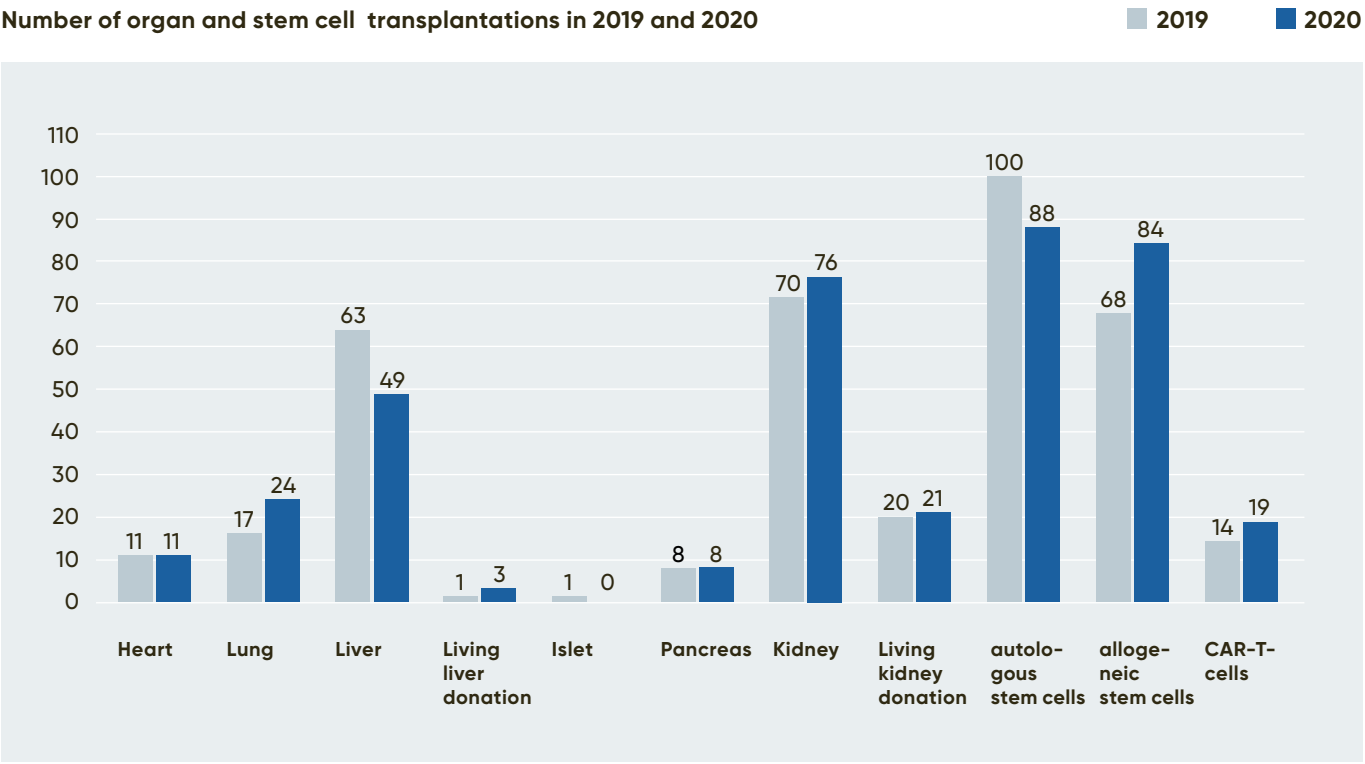

Figure 1: Number of transplants in 2020 compared against the numbers recorded in the previous year

Summary
In 2020, there were a total of **192** solid organ transplantations (2019: **192**); **26** patients died while on the waiting list for organ transplantations (2019: **22**).

Transplantation Center
As was the case everywhere else, the SARS-CoV-2 pandemic was the defining issue in 2020, which directly affected everyone intensively. Despite very difficult circumstances, it was possible to maintain the volume of transplants in comparison with 2019, which would not have been possible without the commitment of everyone involved. We would like to say thank you to everyone – from the Donor Care Association to the reorganization of the outpatient consultation. Providing timely information to everyone involved was and is of great importance in a rapidly changing medical context and with a collective effort we were able to realize it despite the high workload.

At this point, I would particularly like to mention Prof. Thomas Müller, who not only played a leading role in establishing internal guidelines for treating those of our patients who were infected with COVID-19, but also played a major role in organizing two symposia for patients and interested stakeholders. The first symposium which was held in November was dedicated to the clinical picture and treatment of SARS-Cov-2, the second to the topic of vaccination. Both were very well received, with up to 600 people taking part via an online stream on the day of the event and many watching the recorded events afterwards.

Boards and authorities
In 2020, the Transplantation Center received the renewed approval from the Federal Office of Public Health, Switzerland, authorizing transplantations to be carried out until May 19, 2025.

Research and training
With 81 publications, the center was very successful despite the adverse circumstances. However, many events were unable to take place within the desired framework. The Annual Symposium 2020 was converted into a patient event to meet the major desire for information of all affected by the pandemic. Patients with COVID-19 benefited from a large number of clinical studies that have been and are being carried out at the USZ under the current difficult circumstances.

Objectives for 2021

- Successful completion of the COVER-ALL study (vaccination response to mRNA SARS-COv-2 vaccinations in patients after solid organ transplantation)
- Study on vaccination response after stem cell transplantation
- Renewal of SNFS funding for the Swiss Transplant Cohort Study (STCS)

2 Center-specific and integrative functions

2.1 Transplant coordination

Stefanie Schiess, Head of Transplant Coordination

2020 was a difficult year for everyone. The coronavirus pandemic hit the whole of Europe in February. The virus had a considerable impact, including on organ donation in Switzerland. Thanks to the close cooperation with SwissTransplant, the organ donation networks and the individual transplant centers, we were able to overcome the first wave of the pandemic without any major setbacks. The transplantation activities for live-saving organs were maintained at all times.

The year was also marked by many ups and downs for the eight transplant coordinators.

- For the patients on the liver waiting list, a so-called "pandemic urgent" status was introduced in internal meetings. This was rescinded on April 27, 2020.
- Unfortunately, kidney transplants had to be completely discontinued between March 17 and April 13, 2020
- The living donation program was suspended from March 17 to April 27, 2020.
- The transplantation of patients on the heart and lungs waiting list continued unaffected.

During this period, the transplant coordinators showed a great deal of commitment to looking after the patients on the waiting list. They continued to carry out various clarification request regarding admission to the waiting list and for the living donation program.

Due to the short-term interruption of kidney transplantation, many questions arose from a large number of worried patients. Thanks to the high level of expertise within the team, patients were reassured. The high level of commitment showed by everyone made it possible for us to bridge this time very well and to give patients stability.

Another major change for the transplant coordinators was the introduction of working from home. In some cases, the only person present in the office was the person on duty at the University Hospital Zurich. This measure initially caused a degree of uncertainty.

When the transplantation program was once again fully implemented, it was no longer sufficient for just one person to be present at the USZ. Teamwork and close coordination was now required. The aim was to ensure that there were always enough people present to deal with daily work while at the same time complying with the requirements of the Hospital Executive Board.

In August, the previous Head of Transplantation Coordination, Ms. Lea Kinteh-Vischherr, decided to take on a new challenge within the USZ. The new Head, Ms. Stefanie Schiess, started in her new role in January 2021. As a result, the goal set in 2019 of "consolidating team structure and culture" will remain in force in 2021.

Unfortunately, the otherwise numerous transplantation coordination events that aimed to establish strong patient-coordinator relationships and to promote collaboration with external service providers were very limited this year due to the regulations of the COVID pandemic.

It was therefore important during this time to maintain as close contact as possible with referring physicians and thus indirectly with our patients as well. Prof. Dr. Thomas Müller has established various standards for this purpose. This measure ensured that we provided referring physicians with up-to-date information on the current status of the COVID pandemic and its effects on transplants

In fall 2020, Prof. Thomas Müller helped to organize the "COVID-19 and Transplantation" online symposium.

The otherwise extensive seminars and specialist lectures also had to be reduced to a minimum and could only be held digitally, if at all. The transplant coordinators are looking forward to resuming the activities in 2021

Human resources
At the end of December 2020, a total of eight people were employed with a work percentage of 630%. The work of the transplant coordinators is generally divided into different areas of responsibility. In 2020, this was as follows:

Evaluations	
Liver transplants	104
Living donor liver	35
Living donor kidney	73

Admission to the waiting list 2020
In 2020, 235 patients were listed on the various transplant waiting lists by the transplant coordinators. Details are shown below:

Added to the 2020 waiting list by TPL coordinators	
Heart	14
Lungs	28
Liver	86
Pancreas + kidney	2
Islet cells after kidneys	1
Islet cells + kidney	1
Kidney	103
Total	**235**

Additional tasks for the transplant coordination arise when a potential organ donor is available. In 2020, 1157 hours of coordination were carried out.

Transplantations
The following transplantations were performed at USZ in 2020:

Type and number of transplantations performed	
Heart	11
Lungs	24
Liver	52
Pancreas	8
Kidney	97

Project work
- OKT
- STATKO
- SDTA
- STALOS
- Quality management

Student support
- Interviews
- Support and help with reports

2.2 Interdisciplinary HLA Typing Laboratory

Jakob Nilsson MD, PhD, Head Transplant Immunology,
Zehra Gündüz, Chief Technician HLA-Typing Laboratory

Performed analyses
During 2020, the Transplant Immunology Laboratory continued to support the transplant centre of the University Hospital Zurich (USZ) with high quality transplant immunological laboratory analysis. In total 5969 clinical samples were received in the lab in 2020. We performed 1233 transplant related HLA typing analyses and completed 5544 bead-based analyses of anti-HLA antibodies. The laboratory operates a 24/7 on-call service to facilitate the rapid HLA-typing of organ donors so that donated organs may be allocated within the Swiss Organ Allocation System (SOAS). In 2020, we performed HLA-Typing and assisted with cross-match testing on 61-deceased organ donors, we also supported the allocation of 90 additional deceased donor organs by performing cross-matches. We assisted the stem cell transplant program with transplant immunological analyses of 177 possible stem cell recipients as well as with HLA Typing 215 possible stem cell donors.

Organ recipient waiting lists
The Transplant Immunology Laboratory continuously performs transplant immunological evaluations to maintain adequately updated waiting lists for organ transplantation. As of 01.01.2021, there were 299 patients on the USZ waiting list for a deceased donor kidney. In 2020, there were 104 new patients registered on the waiting list and 97 patients were transplanted with a donor kidney at the USZ (21 from living donor donations). For lung transplantation, we performed transplant immunological workup on 39 potential recipients, 24 patients were transplanted with a

lung at the USZ and as of 01.01.2021 there were 16 patients on the waiting list for lung transplantation. Immunological workup was also performed on 19 potential recipients of a heart transplant and 11 patients were transplanted at the USZ in 2020, while 15 patients remained on the waiting list for a heart as of 01.01.2021.

Notable changes in laboratory procedures
During 2020, several changes to our laboratory procedures were made. We have implemented an assay for high resolution HLA typing based on Next Generation Sequencing (NGS). The high resolution NGS has been implemented as our standard assay for HLA typing in the setting of both stem cell and organ transplantation. This allows us to evaluate possible donor specific antibodies (DSA) with a much higher resolution and also improves our ability to accurately investigate recipient donor constellations in the setting of allogeneic stem cell transplantation. We also introduced a new method for cross-matching by use of a Flow-cytometry based assay. This new cross-match method improves our sensitivity in detecting the presence of donor specific IgG antibodies and is a valuable complement to the existing CDC based cross-match assay and our solid bead anti-HLA antibody assays in the immunological risk assessment of living donor organ transplantation.

Additional information
In 2020, two new technicians (Helen Wehrli and Emel Hamiti) were added to the team. The European Federation of Immunogenetics (EFI) also performed an accreditation process of the laboratory with focus on the new high resolution NGS based HLA Typing assay and the laboratory's EFI accreditation was successfully extended to also include high resolution HLA Typing, with positive remarks on the high laboratory standard. The lab also continued to support the ongoing Swiss Transplant Cohort Study (STCS) by processing 399 clinical samples in 2020 from transplanted patients as well as with retrieving and shipping aliquots from stored samples for STCS approved clinical studies.

2.3 Prizes

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

- **Dr. phil. Sonja Beckmann** (Center for Clinical Nursing Science, USZ) and **Dr. Patrizia Künzler-Heule** (Nursing Service, St. Gallen Cantonal Hospital) – "Theodor Fliedner Medal for Innovative Nursing Practice 2019" for the project submission: Cross-hospital care consultation for liver transplantation
- **PD Dr. med. Antonia Müller** (Department of Medical Oncology and Hematology) – "Basic Science Award" from the EBMT (European Society for Blood and Marrow Transplantation)
- **Prof. Dr. med. Markus Wilhelm** (Department of Cardiac Surgery) – Re-elected as President of the Medical Committee of Swisstransplant
- **PD Dr. med. Andreas Flammer** (Department of Cardiology) – elected as President of the Heart Failure working group of the Swiss Society of Cardiology
- **Prof. Dr. med. Nicolas Müller** (Department of Infectious Diseases & Hospital Hygiene) – Renewed term of office in the IVHSM Specialist Body (specializing in Transplantation Medicine) confirmed.
- **Prof. Dr. med. Thomas Müller** (Department of Nephrology) - Elected to the Executive Board of the Declaration of Istanbul Custodian Group (DICG)

2.4 Participation on national and international committees

Betschart, Kuno
- Member of Swiss Nurse Leaders

De Rougemont, Olivier
- Member of the Board: STAN, STALOS, STAPS (President)
- Member of the Swisstransplant Medical Committee
- Scientific Committee: Swiss Transplant Cohort Study
- Member MERH (Center for Medicine – Ethics – Law Helvetiae)

Dutkowski, Philipp
- President of STAL
- STS Scientific Committee
- President of STAPT
- Member of the Médical Committee
- Member of the DCD Working Group Swiss Transplant
- Member of the ILTS Special Interest Group DCD/ Machine liver perfusion

Flammer, Andreas
- President of the Swiss Society of Cardiology Working Group Heart Failure
- Fellow of the European Society of Cardiology (FESC)
- Fellow of the European Heart Failure Association (FHFA)
- Member of the «Diagnosis Committee» and «Working group of heart failure imaging» of the HFA
- Member of the Working Group Heart of Swisstransplant (STAH)

Hillinger, Sven
- Scientific Committee: Swiss Transplant Cohort Study
- Member of the Ethics Committee of the University Hospital Zurich

Kinteh-Vischherr, Lea
- Member of OKT (core operations team) of the CNDO (National Committee for Organ Donation)
- Member of STATKO (Swisstransplant working group of coordinators)

Lehmann, Roger
- 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

Müller, Antonia
- Vice President of the SAKK cellular therapy working group

Müller, Nicolas
- 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 Scientific Committee, Swiss Society of Transplantation
- Editorial Board of Xenotransplantation; Transplant Infectious Diseases

Müller, Thomas
- Member of the Boards/Scientific Committees (STAN, STALOS)
- President of the STALOS Working Group for living organ donation
- Scientific Committee (Swiss Transplant Cohort Study, Swiss National Science Foundation member evaluation body SNF)
- Member of the Ethics Committee of the University Hospital Zurich
- Board Member of DICG (Declaration of Istanbul Custodian Group)
- Co-Director of Swiss Kidney Paired Donation Groups
- Member of the "Living Donor Organ Donation Sub-Committee" of the Swiss Academy of Medical Sciences

Nilsson, Jakob
- Member of the Boards/Scientific Committees (STAN, Immunology working group)
- Fellow of the Transplant Society
- Fellow of the European Federation of Immunogenetics
- Associate editor of Frontiers in Immunology

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

Odermatt, Ramona
- President of STAPF Working Group Swiss Transplant

Plock, Jan
- Member of the ESOT Basic Science Committee

Schanz, Urs
- President of Swiss Stem Blood Cell Transplantation (SBST)
- Member of the Committee on Allogeneic Stem Cell Transplantation (KAT)
- Board of Directors, Swiss Transfusion SRC
- Member of the EBMT Nuclear Accident Committee (NAC)
- Senior Editor: Transfusion and Apheresis Science (2013–2015)
- Editorial board member of Transfusion and Apheresis Science

Steinack, Carolin
- Member of the European Respiratory Society (ERS)
- Member of the European Cystic Fibrosis Society (ECFS)

Wilhelm, Markus
- President of the Working Group Heart of Swisstransplant (STAH)
- President of the Swisstransplant Medical Committee
- Member of the Working Group for Procurement and Transportation (STAPT)
- Member of the Board of Representatives 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

Zalunardo, Marco
- 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. Nicolas Müller, Member of the TNT Organizing Committee

Education events were highly influenced by COVID-19 as well. On February 24, 2020, Dr. med. Michael Gagesch from the Department of Geriatric Medicine gave an exciting talk on the topic of frailty. After this, all events had to be cancelled until September 28, 2020. On this day, we held an internal event and discussed all COVID-19-related topics, from therapy to procedures.

One of the highlights was the 14th Annual Symposium of the Transplantation Center, which focused on the topic of "COVID-19 and Transplantation" and highlighted many important aspects for those affected as well as other interested persons. Topics discussed covered not only clinical issues, but also other issues such as vaccination equity. Due to the pandemic situation, the event was carried out on site on a small scale and virtually via a livestream for our patients for the first time. The event has been recorded and can still be viewed at the following link:
www.covid-19-transplantation-usz.myhealthcare.ch

2.6 Swiss Transplant Cohort Study (STCS)

Prof. Dr. Nicolas Müller, Chairman of the STCS Scientific Committee

The decision to continue the funding of the STCS by the Swiss National Science foundation was postponed to 2021 due to the pandemic. The application was originally submitted at the end of October 2020. The STCS is in the privileged position of being invited to apply, together with the Swiss HIV Cohort Study, as a cohort of national importance for renewed funding. With more than 8000 patients, 1/3 of whom are in Zurich, STCS has developed into an internationally recognized institution whose research results have attracted great interest. This is also reflected in the publications from 2020 – for example, the work of Mombelli et al., which examined the respiratory infections in our transplanted patients and was accompanied by an editorial. (Burden, epidemiology, and outcomes of microbiologically confirmed respiratory viral infections in solid organ transplant recipients: a nationwide, multi-season prospective cohort study). Am J Transplant. 2020; doi: 10.1111/ajt.16383. Online ahead of print).

3 Organ donation network

Donor Care Association (DCA)

The following information is taken from the Donor Care Association Annual Report 2020. The purpose of the DCA is to make organs[1] available for organ transplantations.

The aim of the DCA is to facilitate organ donations from all patients who die in an intensive care unit or accident , in case of medical feasibility and to comply with the will of the deceased. Of the 60,000 to 70,000 deaths in Switzerland each year, around 5000 people died in intensive care units. As a result, post-mortem organ donation[2] was possible in 146 deaths across Switzerland in 2020.

For the DCA Network, one of the six regional organ donation networks, this means that 1195 people who died in intensive care units received specialist support and were documented, resulting in 38 donors. This work is the responsibility of the DCM and receives significant support from FOGS and, of course, the medical teams directly involved. First and foremost, the deceased and their relatives who consented to such a donation are always treated with the utmost respect.

As a result of constant professionalization in recent years, donation numbers have increased and high-quality improvements have been achieved.

[1] DBD and DCD (live donors assigned to transplantation team)
[2] corresponds to 0.25% of all deceased or 3% of all deceased intensive care patients

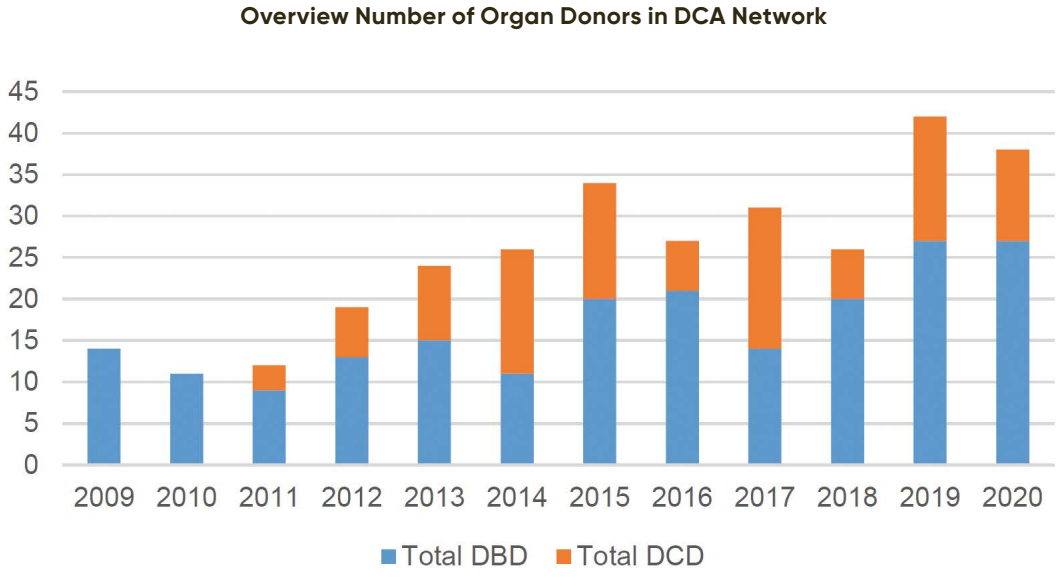

Figure 2: DCD and DBD donations in the DCA Network in 2020 (DCA Annual Report 2020)

4 General care of transplant recipients at the Transplantation Center

4.1 Anesthesiological aspects of transplantation

Prof. Dr. Marco P. Zalunardo, Deputy Director of the Institute, Institute of Anesthesiology, Dr. med. Rolf Schüpbach, Senior Physician, Institute of Anesthesiology

Organization

As was the case for all of the medical departments at the USZ, transplantation medicine was and remains extremely challenging due to the pandemic. Due to the "Pandemic-Urgent" listing decreed by Swisstransplant for our liver transplantation listed patients, many difficult decisions had to be made. Reliable solutions were found at various meetings involving all disciplines up to the highest hierarchical level. Despite the sometimes very tense situation in the intensive care units, it was possible to carry out transplants on several very ill patients.

Dr. Gabriela Spahn, in collaboration with Prof. Müllhaupt, introduced Residents in the Department of Hepatology to the necessary procedures in order to improve the quality of treatment and establish continuous care for patients listed for liver transplantation in the Department of Patient Blood Management.

Department

Intraoperative Patient Blood Management has been enhanced to ensure the consistent use of automated autotransfusion (cell salvage) in solid malignant tumors. The collected blood is irradiated and can be retransfused. In the case of liver transplants, the immediate preoperative withdrawal of autologous blood without volume replacement (known as a phlebotomy) was introduced. This means that liver transplantation without the need for a blood transfusion has become the norm at the USZ.

4.2 Nursing care at the Transplantation Center

Ramona Odermatt, Head of Advanced Practice Nurses MB AST

Nursing care in the East E III ward of the Transplantation department

Patients who have been called in for a transplantation are received in the East E III ward and prepared for the upcoming surgery. They then receive postoperative care and assistance following a lung, liver, kidney, pancreas or islet cell transplantation, or a combined transplantation of several of these organs. In 2020, there was a change in the Head of the Nursing Department. Ms. Tijana Stanojevic took over as Head of the Nursing Team on June 1, 2020s.

APN care consultations

The long-established transplantation care consultations offer patients and their relatives a consulting service prior to and after kidney or liver transplantation. The consultations are carried out by an Advanced Practice Nurse (APN) and take place as inpatient and outpatient services. The aim is to provide patients and their relatives with the best preparation possible for a life with the new organ, to improve their personal responsibility for dealing with illness and to individually promote self-management.

Kidney transplantation care consultations

Patrizia Zala, Advanced Practice Nurse

The kidney transplantation care consultations focus on the patients and their relatives following a kidney transplantation. The initial face-to-face contact takes place during the inpatient stay after the transplantation. In the first months after the transplantation, the patients will receive two consultations by an APN – further consultations can also be arranged, where necessary. The issues covered in these sessions are as follows: coming to terms with the new situation (e.g. dealing with high blood sugar levels in the first weeks after the transplant), use of medication, preventing infections and secondary disorders (e.g. by using sun protection), healthy behavior in general (e.g. preventing deconditioning and being overweight or underweight).

A total of 586 care consultations were conducted in 2020 and the proportion of diabetes consultations for kidney transplant patients increased 50% compared to last year.

Collaboration
At UHZ

Transplantation coordination: Upon request, the APNs can arrange an exchange of experiences between a new patient and a previously transplanted person.

Wards: Consultations during inpatient stays are planned and carried out with the treatment team. Above all, APNs are also a resource for the care of patients and relatives with greater needs and complex overall situations. A joint training day was held in October 2020 to introduce new employees and act as a refresher for exiting employees.

Nephrology: In 2020, the APNs increasingly worked in tandem with chief physicians and assisted them during their consultations.

Diabetology: In 2020, the guideline for treating elevated blood sugar levels following a kidney transplantation was revised in accordance with the latest scientific findings and a decision-making algorithm was added. This algorithm oversaw the prescription of antidiabetic agents with the aim of influencing concomitant diseases as positively as possible. The interdisciplinary and interprofessional collaboration was also expanded. The APNs help their colleagues in Diabetes and Nutrition Counseling and the Medical Service equally in caring for patients with elevated blood sugar levels following a kidney transplantation.

Infectiology: In 2020, the recommendations on the prevention of food-borne diseases were critically reviewed and updated.

Children's Hospital Zurich
As part of a jointly organized transition afternoon, four young adults moved from the pediatric to adult medicine in November 2019. All of them received an individual status review and consultation meeting. They will continue to be co-supervised by the APNs according to their individual needs.

Information brochures
In addition to the consultation, patients and their relatives receive three information brochures. The first covers preparation for a kidney transplantation, the second serves as guide during the inpatient stay after the transplantation, and the third focuses on living with the new organ while attending consultations as part of outpatient follow-up and care checks at the USZ. All three brochures were updated and reprinted in 2020.

Liver transplantation care consultations
Andrea Pfister Koch, Advanced Practice Nurse in Liver Transplantation
The liver transplantation care consultations offer patients and their relatives a consulting service before and after a liver transplantation. The content and scope of the consultations are adjusted to meet the individual needs of the patients. Prior to transplantation, the main focus are symptom management, waiting list procedure, healthy behavior (e.g. stopping to smoke, nutrition and exercise), and emotionally processing the medial condition. After transplantation, the focus is placed on the topics of the use of medication, prevention of infections, self-monitoring, how to respond to organ rejection and recommended healthy behavior, such as using sun protection.

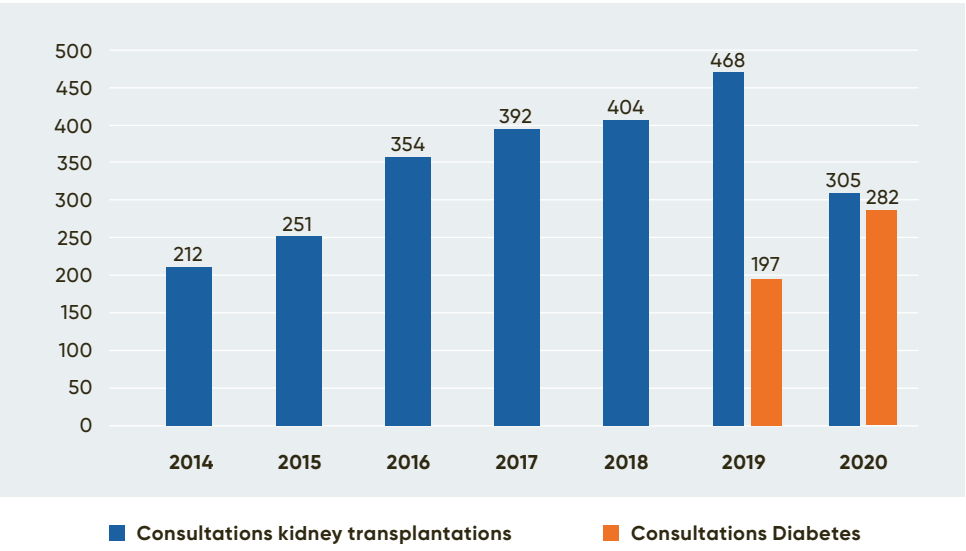

Figure 3: Number of consultations 2014–2020

APN activities were expanded in 2020. On 43 afternoons in total, the APNs saw 198 liver transplant patients together with a senior doctor for consultations The consultation schedule requires that these patients underwent transplantation at least six months ago and that their medical condition is measurably stable. . The increase in occupation, which was accompanied by a 20% raise in job percentage, explains the significantly higher outpatient consultation work compared to previous years.

In addition, the APNs were able to answer telephone calls and respond to e-mail inquiries concerning COVID-19 from many unsettled transplant patients and their relatives in 2020. For many of those affected, it was very important to discuss the information they received from the COVID Symposium and other sources with an expert at the USZ in person. These brief consultations lasting less than 20 minutes are not included in the statistics for 2020.

Information brochures
In addition to the consultations, patients and their relatives receive the brochures; "Useful information to prepare yourself for a liver transplantation" and "Useful information for life after a liver transplantation". The brochures are also used as the basis for the guided inpatient education sessions. The "Living donor liver donations – useful information for donors and recipients" brochure has also been handed out since 2017. All of the brochures were updated and reprinted in 2020.

Collaboration
The collegial and interprofessional collaboration within and outside the UHZ was also intensified in 2020. Due to the pandemic, an increasing number of liver transplant patients went directly home after their stay in the hospital. This made it necessary to work more closely with external specialist services, such as family practices, Spitex, etc.

At the UHZ
The consultations as well as the guided inpatient education sessions during hospital stays following the transplantation are planned and carried out together with the nursing teams on the wards. The weekly interprofessional case reviews allows the treatment team, comprising the Nursing Service, APNs, Medical Service, psychiatrist, Nutrition Counseling, Physiotherapy, and Social Services, to quickly discuss the individual needs and coordinate the discharge plan in a timely fashion.

Zürcher RehaZentren Davos-Clavadel
The cooperation of the nursing and medical team is widely established with the combined guided education sessions following transplantation. A continues exchange between the disciplines is guaranteed. In 2020, Clavadel once again supported the largest number of liver transplantation patients from USZ during the rehabilitation phase.

Klinik Adelheid AG, Rehazentrum Zentralschweiz, Unterägeri
Since January 2020, liver transplant patients have had the option of rehabilitation at Klinik Adelheid in Ägeri. In February 2020, two nurses visited the USZ to sit with the aim of acquiring specialist knowledge for the care of liver transplantation patients. Due to the pandemic and the resulting complicated discharge planning and bed shortages, only a few liver transplantation patients have benefited from this option so far.

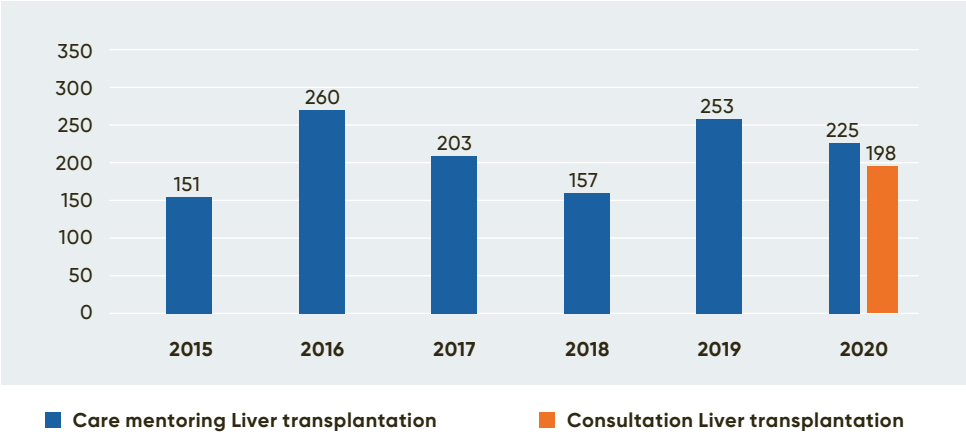

Figure 4: Number of personal consultations & care consultations 2015–2020

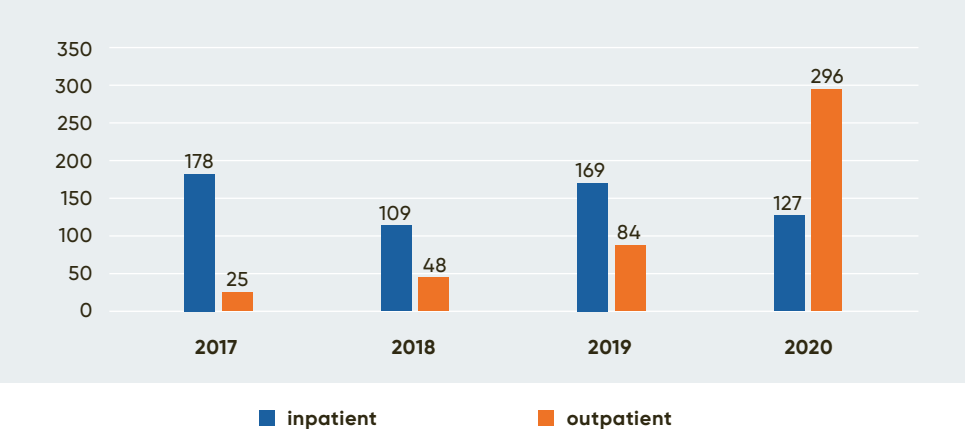

Figure 5: Number of inpatient and outpatient consultations

Kantonsspital St. Gallen (KSSG)

Patients that receive medical care predominantly at KSSG are likewise provided with care consultations by Advanced Practice Nurses in Hepatology at KSSG. The close 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.

External presentations

24th Symposium of AKTX Pflege as part of the DTG Annual Meeting in Cologne on October 16, 2020
«Ein Bild sagt mehr als 1000 Worte, ein interprofessionelles und spitalübergreifendes Praxisentwicklungsprojekt»
("A picture is worth a thousand words – an interprofessional and inter-hospital practice development project")
Andrea Pfister Koch, UHZ

4.3 Infectious disease control for transplant patients

Prof. Dr. Nicolas Müller, Infectiology

Naturally, 2020 was influenced by the SARS-CoV-2 pandemic. In the early stages of the outbreak, guidelines for dealing with patients suffering from COVID-19 were established under the leadership of Prof. Dr. Thomas Müller, which also attracted attention from outside of Zurich. A leaflet highlighted the necessary measures for patients and addressed the many questions they had. The symposia for our patients have already been mentioned. Despite the pandemic, the transplantation volume was around the same level as in 2019, which resulted indirect inquiries to the infectious disease consultations and regular visits. Our consultation service recorded 2241 infectious disease consultations including follow-up consultations for patients in connection with transplants in 2020. This corresponds to approximately a quarter of all of the infectious disease consultations held at UHZ.

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

Dr. med. Mirjam Nägeli, Department of Dermatology

Recipients of solid organs and bone marrow/stem cells are seen as part of specialized consultations for immunosuppressed patients at the Department of Dermatology. Patient numbers in the specialized consultations for immunosuppressed patients (ISS) at the Department of Dermatology remained at a similar level compared to the previous year, but were slightly reduced. This is partly due to a number of cancellations because of the pandemic and partly to the relocation of the entire dermatological outpatient clinic to the Circle at the airport, which is why the ISS was closed for a few days. The ISS are the only outpatient dermatology consultations that will remain on the USZ campus and will not be moved to the Circle. In 2020, we recorded over 3332 consultations with 2005 patients (38 consultations and 113 patients fewer than in the previous year).

The main focus is 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, transplanted patients are made aware of the problem of white skin cancer and are trained in preventing these through appropriate behavior, clothing, use of sunscreen and in early detection.

Information brochures
In addition to the consultations, 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 cause an increased risk. We thereby hope to identify patients with the greatest need at an early stage and support these specifically.

4.5 Psychosocial care for recipients and donors before and after transplantation

Dr. med. Andre Richter, Advisory and Liaison Psychiatric Servicese

Every organ recipient is offered psychiatric care and psychotherapy. This begins with the first consultation and continues during the waiting period and after surgery during their hospital stay. Whenever possible, the same expert handles the respective patient's subsequent treatments with relatives being involved as well. Psychosocial evaluations of donors are also carried out. We provide support in the departments within scheduled evaluations and as consultations, where necessary. Team members take part in visits and interdisciplinary case reviews in the departments and the listing colloquia. At our outpatient clinic, care can be continued for a longer period of time.

The team is part of the Advisory and Liaison Psychiatric Services unit of the Department of Consultation-Liaison Psychiatry and Psychosomatic Medicine. This department is headed by PD Dr. med. Sebastian Euler. The team consists of two FMH-certified attending physicians specializing in psychiatry and psychotherapy with additional qualifications in consultative and liaison psychiatry or psychosocial medicine (1.5 FTE) as well as one specialist psychologist for psychotherapy (0.8 FTE). Patients with heart transplantations are now also being cared for in our Department of Psychocardiology.

5 Individual transplant programs

5.1 Allogeneic stem cell transplantation

PD Dr. Urs Schanz, Department of Hematology

Despite the coronavirus pandemic, the allogeneic transplantation increased significantly to 84 (2019: n = 68, 2018: n = 67, 2017: n = 55 compared to previous years). However, the most common indications for allogeneic stem cell transplantation remained myeloid neoplasms (n = 63). The cumulated transplant-related one-year mortality rate remained considerably below 10%, which is encouragingly low and stands up well to international comparison.

Pursuant to the increase in the total number of transplantations, the number of transplantations with unrelated donors increased to 42 (2019 n = 35) as well as the number of related donors to 41 (2019 n = 33), with the latter group of donors including 24 HLA-identical siblings and 17 donors who were haploidentical children, parents, or siblings (2019 n = 15, 2018 n = 11). Thus, haploidentical transplantations also increased once again and we are interested to see whether this trend will continue next year. The number of reduced intensity conditioning cases (RIC) rose to81 % in comparison to 2017 (2019: 74%, 2018: 68%). This is explained by the strategy of toxicity minimization (RIC) adopted during the COVID-19 pandemic, with the aim of keeping as many intensive care beds as possible free for patients suffering from COVID-19.

The evaluation and supply of transplants from healthy, voluntary donors for other centers in Switzerland and around the world stayed on par with last year at 43 (2019 n = 44, 2018 n = 43).

5.2 Autologous stem cell transplantation

PD Dr. Antonia Müller, Department of Hematology

The COVID-19 pandemic also greatly affected our autologous stem cell transplantation program. With a total of 88 autologous transplantations, slightly fewer transplantations were performed than in the previous year – 54 of which were in myeloma patients, 14 in lymphoma patients, 11 in patients with multiple sclerosis and the rest were in patients with acute myeloid leukemia and germ cell tumors. This decline is also attributed to the COVID-19 pandemic, since autologous transplantations without curative potential, partly in patients with co-morbidities, were rejected entirely. During the first wave, high-dose chemotherapy with autologous transplantation in myeloma patients was postponed to ensure that patients would have access to an intensive care bed in the event of serious complications. This was also the case for patients with multiple sclerosis (MS), in whom autologous stem cell transplantation is less urgent than in patients with aggressive hematological neoplasms. Nevertheless, the register study of autologous transplantation for MS patients continues to be of great interest for the Swiss MS population in its third year. Regular interdisciplinary meetings between Hematology/Neuroimmunology and Psychiatry continue to take place every month.

The CAR-T cell program, newly launched in the previous year, is also developing very positively. CAR-T cells (=chimeric antigen receptor T cells) are autologous, genetically modified immune cell therapeutic agents, of which two different treatments targeting the target antigen CD19 are now approved in Switzerland for the treatment of aggressive non-Hodgkin's lymphoma. At USZ, twelve patients were administered tisagenlecleucel (Kymriah, Novartis) and seven patients axicabtagene ciloleucel (Yescarta, Kite/Gilead) in 2020.

This year, we also focused on the planning of a new clinical stem cell laboratory near the main hematological laboratories, which we are happy to announce is now in the implementation phase. We hope to be able to move into the new premises before the end of the year.

5.3 Miscellaneous information from the Center for Stem and Immune Cell Therapy

Cordula Walt, Quality Manager

We have achieved our annual goal – the successful re-accreditation of the entire center, or rather the accreditation of the new CAR-T cell area by the EBMT (European Society for Blood and Marrow Transplantation). In order to keep our documentations up to date and to ensure that they can be traced at all times, we successfully realized the USZ's new Document Management System (DMS) as a pilot group.

5.4 Heart transplantation

Prof. Dr. Markus Wilhelm, Cardiovascular Surgery,
Prof. Dr. Andreas Flammer, Cardiology

The COVID-19 year 2020 also proved to be particularly challenging for the heart transplantation program. Transplantation activity has been shut down in many countries. Although heart transplantation activity has not been discontinued at the USZ, the eleven heart transplantations carried out in 2020 did not quite match the figures of previous years. In 2020, many transplanted patients were reliant on a ventricular assist device prior to heart transplantation, with most of them on a left ventricular assist device (LVAD). The number of ventricular assist device implantations in 2020 was also not quite on the same level as in previous years. Five patients were provided with a left ventricular assist device (Figure 6).

The number of implantations of short-term ventricular assist devices, ECMO (ExtraCorporeal Membrane Oxygenation) and ECLS (ExtraCorporeal Life Support), which are used for therapy for refractory acute pulmonary or cardiovascular failure, remained similar in 2020 at 123 (Figure 7). Approximately 73% of the implantations were carried out as ECLS in cardiogenic shock and 27% as ECMO in lung failure. There was a record-high number of patients transferred with ECMO/ECLS in 2020. Forty-six patients were given ECMO/ECLS at external hospitals and subsequently transported with the ECMO/ECLS to University Hospital Zurich.

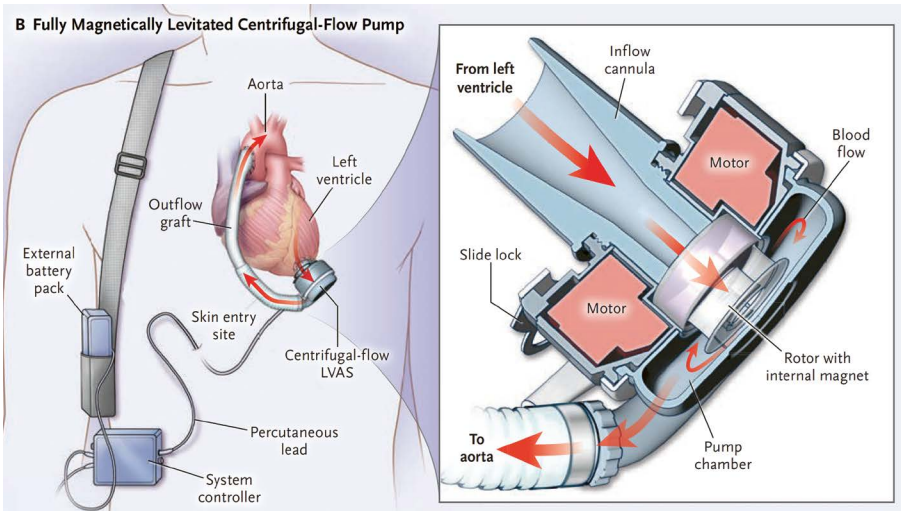

Figure 6: Left-ventricular assist device (HeartMate 3) (from: Mehra et al., N Engl J Med 2017;376:440-450)

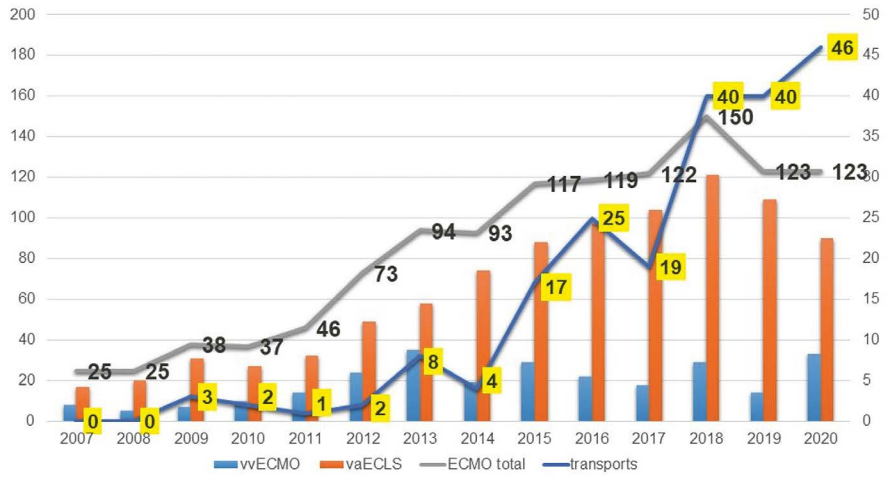

Figure 7: Number of ECLS/ECMO implantations since 2007

5.5 Lung transplantation

PD Dr. Sven Hillinger, Thoracic Surgery,
Dr. med. Carolin Steinack, Pneumology

In reporting year 2020, a total of 24 lung transplantations were performed on adults, in the majority of which perioperative ECMO was used. Some 51 patients were referred for evaluation and 42 adult patients were evaluated for lung transplantation as an inpatient. A total of 23 patients were added to the waiting list. Due to the increasing use of triple CFTR modulator therapy in addition to the existing CFTR modulators, the proportion of patients with cystic fibrosis (CF) on the waiting list continues to decrease. It was even possible to remove more CF patients from the waiting list. Due to the planned cooperation with the Kantonsspital St. Gallen and the University Hospital of Bern, we have to assume that there will be an increase in lung transplantation evaluations. The collaboration that started 2018 has already been successful based on the increasing number of referrals from the Quartier Bleu, a practice specializing in CF at Lindenhofspital in Bern, and the adult CF center at UHZ for the care of patients with advanced CF lung diseases.

On January 1, 2020, Prof. Isabelle Schmitt-Opitz was appointed the new Director of the Department of Thoracic Surgery. This ensures important continuity within the management team. Prof. Ilhan Inci has assumed the role of Head of Surgery within the transplantation program and is taking part in the curatorship of the USZ Transplantation Center. At the end of 2019, PD Dr. Macé Schuurmans was appointed as Head of the Department for Lung Transplantation and adult CF and joined Prof. Inci in the curatorship for the USZ Transplantation Center.

Activities of the research group

- Various master's and dissertation projects (total of 6) were started in the areas of:
- Various aspects of coronavirus and influenza infections, causes of death after lung transplantation, outcomes after extracorporeal photopheresis, immunological outcomes after lung transplantation, immunosuppression after lung transplantation
- Application to extend the coverage of the costs for extracorporeal photopheresis by basic insurances.
- Collaboration with basic researchers in the field of cystic fibrosis (diagnostics and therapy).
- Presentation of an EVALI case at the mini congress of the Swiss Society of Pneumology (Bern). Limited congress activity due to the coronavirus pandemic. Various review activities.

5.6 Liver transplantation

Prof. Dr. Philipp Dutkowski, Visceral Surgery,
Prof. Dr. Beat Müllhaupt, Gastroenterology

In 2020, 52 liver transplantations were performed in Zurich (a total of 135 liver transplantations were carried out across Switzerland). Thirty-two (24%) of transplanted livers came from persons who suffered brain death after cardiac arrest (DCD) and four (3%) were from living donors (Figure 8). Overall, this means that 33 fewer livers were transplanted in Switzerland in the pandemic year than in 2019 (-20%). Some of the liver transplant programs in Switzerland were only temporarily availability or were discontinued entirely due to the shortage of available capacities in the hospitals. However, the number of people waiting for a liver did not increase in 2020 (Figure 8).

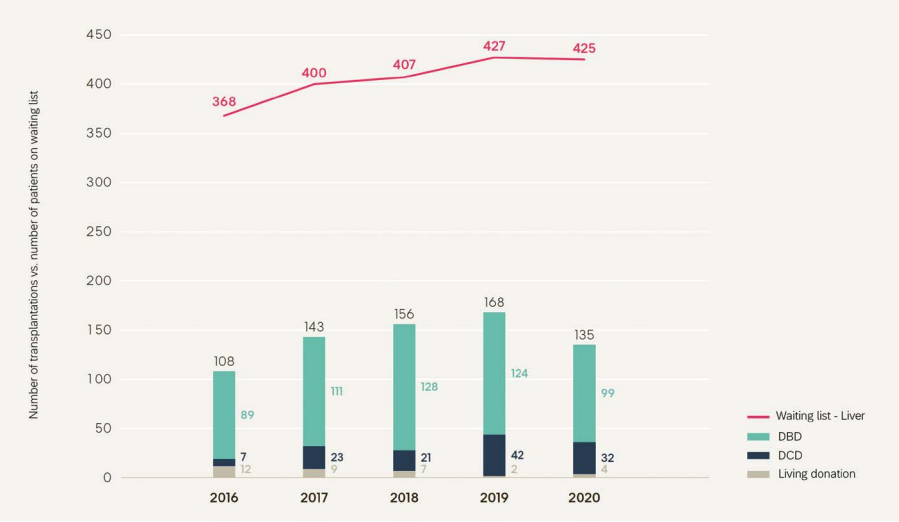

Figure 8: Number of liver transplants in Switzerland relative to the number of patients on the waiting list (Swisstransplant Annual Report 2020)

5.7 Kidney transplantation

Prof. Dr. Thomas Müller, Nephrology,
Dr. med. Olivier de Rougemont, Visceral and Transplant Surgery

A total of 97 kidneys were transplanted at the University Hospital Zurich in 2020. As a result, number of kidney transplantation remained at virtually the same level despite the COVID pandemic. Therefore, the USZ transplantation program was the leading program in Switzerland for the first time, and not just for kidney transplantations from deceased patients (76), but also for living donor kidney transplantations (21). In addition to these positive numbers, which also demonstrate the close and successful collaboration with our referring physicians, it is worth noting that the therapy programs for immunosuppression after kidney transplantation have been completely revised for 2020. In particular, risk assessment was redefined, induction therapy was adapted and overall immunosuppression was slightly reduced.

A further qualitative improvement in the transplantation program was the possibility to participate in a study to determine the cell-free DNA and molecular diagnostics of biopsies (Figure 9), which, in addition to standard histology, enables increased precision, especially for the diagnosis of rejections.

During the COVID pandemic, standardized diagnostics and treatment for COVID-positive kidney transplant patients were also defined. In addition to being used at the USZ, it was also greatly appreciated and praised by the referring hospitals and registered nephrologists in particular.

For quality assurance the long-term results of the kidney transplantation program were examined in particular. The key findings are that we have an astonishingly large number of transplant recipients who have had their kidney organ for more than 20 years. These +20 transplant recipients show an excellent and very stable renal function, and that a loss of transplant function is more likely to be due to the death of the patient than to primary renal failure (Figure 10, Figure 11 and Figure 12).

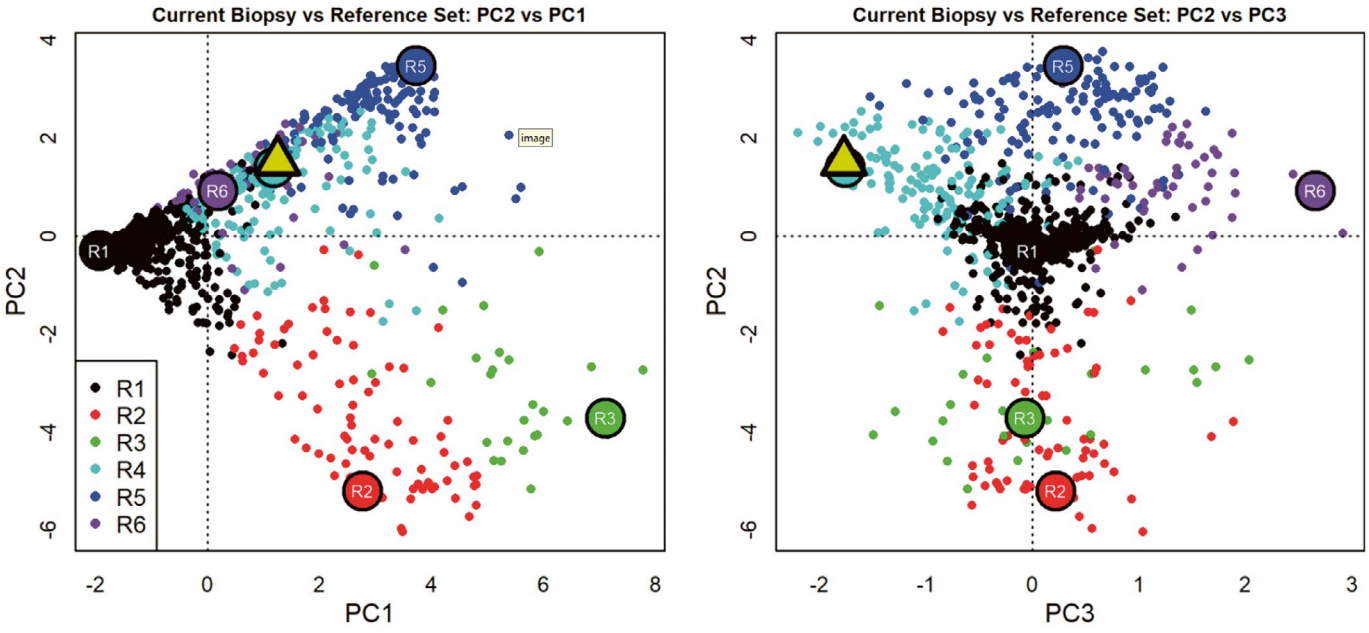

Figure 9: Molecular Microscope® Diagnostic Report for Kidney (MMDx-Kidney)

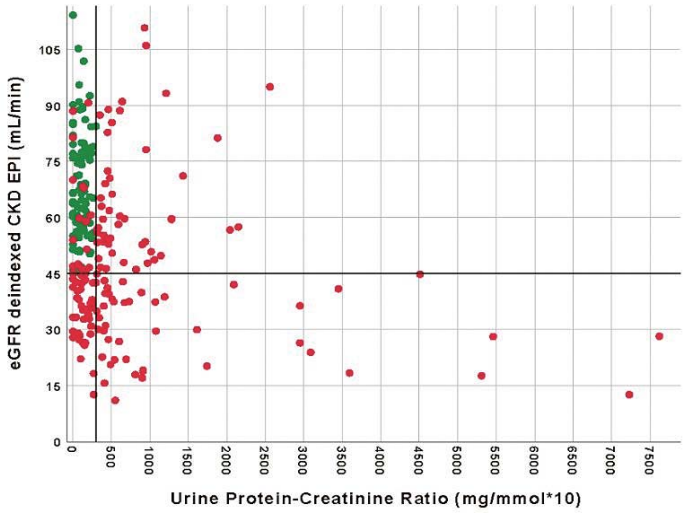

Figure 10:
Proteinuria

Figure 11:
Kidney transplant survival

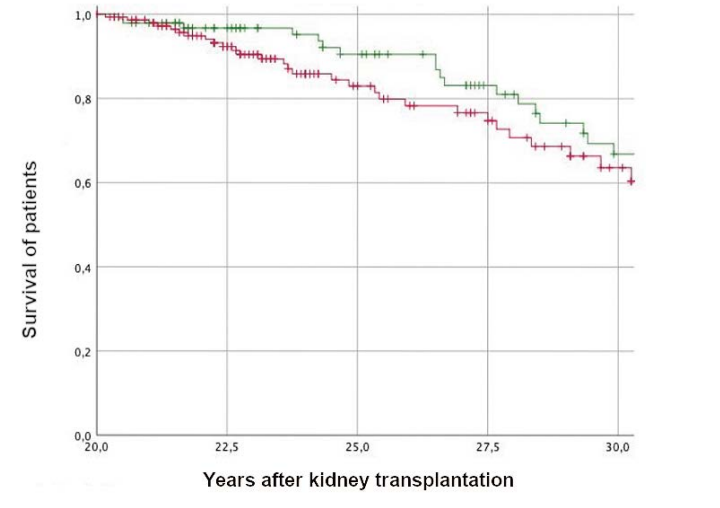

Figure 12:
Patient survival

5.8 Pancreas transplantation

Dr. med. Olivier de Rougemont, Department of Visceral and Transplant Surgery

As in the previous year, eight combined pancreas/kidney transplants were performed. Thus, by European standards, we are still a medium-sized center for this type of transplantation. The first combined pancreas/kidney transplantation DCD was performed in Switzerland in fall. This is a form of pancreatic transplantation that is only performed in a few countries. The patient was hospitalized for almost two weeks, and has normal blood glucose values, is non-insulin-dependent and her renal function is excellent six months after transplantation. A second extraordinary transplantation was a combined pancreas/kidney transplant with an adrenal gland. The adrenal gland was transplanted en-bloc with the kidney. It is still too early to draw conclusions about the function of the adrenal gland. However, the blood flow to the organ could was shown via morphologically imaging.

5.9 Islet cell transplantation

Prof. Dr. Roger Lehmann, Endocrinology and Diabetology

Islet cell transplantation in the reporting year
No islet cell transplantations were carried out in 2020. The potential reasons for the declining number of islet cell transplantations being carried out in Switzerland will be explained in more detail in the following sections.

New regulations for pancreas allocation
The new allocation regulations for pancreas and islet c ell transplantation implemented by the Swiss FOPH in November 2017, have simplified the allocation of organs to patients on the waiting list for a beta cell replacement. Even though patients for an islet cell transplantation had to wait considerably long on the waiting list of a transplant , no more islet cell transplantation were able to be carried out, because most of the organs offered in recent years were considerably older and the donors were multimorbid.

The latest treatment methods with hybrid closed-loop systems
Thanks to modern treatment methods for type-1 diabetes mellitus with continuous glucose measurement in combination with insulin pumps (now: hybrid closed-loop system: Medtronic 780 G, t:slim X2 and Diabeloop), we are also increasingly seeing that most patients are not developing renal insufficiency that makes dialysis necessary, or only do so at an age when a transplant is out of the question. These new systems are the future for therapy for type-1 diabetes mellitus.

Diabetes care
The interdisciplinary collaboration between the Department of Visceral Surgery and Transplantation, the Department of Nephrology and the Department of Endocrinology in the Transplantation Center for islet cell or pancreas and kidney transplantations has been excellent for many years now. The different departments discuss and evaluate each patient together before placing them on the waiting list for the particular transplantation. The care is also based on the latest technologies, such as continuous glucose measurement and sensor-assisted insulin pumps. The use of hybrid closed-loop systems reduces the rate of hypoglycemia even further or eliminates it entirely. In addition, state-of-the-art semi-automatic insulin pump systems, that secrete insulin depending on the glucose levels measured by the sensors offering a much better way to control blood sugar. The pumps will automatically increase insulin secretion when blood sugar levels are elevated and apply correction bolus. Blood sugar levels can be kept in the target range of 3.9–10 mmol/l much more reliably. The aim is for >70 % of the blood glucose values to be within the target range. The modern method of evaluating blood sugar levels comprises four factors. In addition to HbA1c, the rate of hypoglycemia being less than 3.0 mmol/l, and the above-mentioned target range, the variability of the blood sugar levels is also a key factor. All of these factors can be improved considerably with modern therapies, so that in selected cases, no beta cell replacement (islet cell or pancreatic transplantation) is required, even if a kidney transplant is necessary. If these methods are applied at an early stage, later complications can be avoided. This can be increasingly observed throughout Switzerland in patients with type-1 diabetes mellitus.

Key aspects of the islet cell transplantation program for 2021/22

Autotransplantation of islet cells

Together with the Department of Gastroenterology, we plan to inform more patients with chronic pancreatitis the possibility of a total pancreatectomy, which can eliminate the chronic pain that often leads to these patients being unable to work. The auto-transplantation of isolated islet cells from the person's own pancreas preserves the body's own ability to produce insulin. It is important to plan this operation at an early stage before the entire pancreas is worn out and too few pancreatic islets can be isolated. Following a pilot phase at the UHZ during which a number of autotransplantations were carried out each year, the information events at various hospitals are intended to provide information about this possibility, meaning that more referrals for this transplant procedure can be expected in the future.

Pseudo-islets

The project to optimize the production of pseudo-islets successfully started. In collaboration with Kugelmeier (manufacturer of the "Spherical plate 5D" patented by us), the function of pseudo-islets (artificially separated and re-combined islets) will be investigated (i.e. their oxygen consumption and mitochondrial function). An international clinical trial to improve transplant results by using pseudo-islets has already been fully planned and can be started once it has been approved by the Ethics Committee. It is a multi-center, randomized pilot study (being carried out in Leiden (NL), Lille (F), Dresden (D), Geneva and Zurich), in which the outcomes of conventional islet transplants will be compared with those of pseudo-islet transplants. If the safety of these plates can be demonstrated for islet transplantation, they may also be provided for the stem cell transplantation of pancreatic islets and other micro-organs.

5.10 Reconstructive transplantations

Prof. Dr. Jan Plock, the leader of the Reconstructive transplantation team for many years, was appointed chief physician of plastic and hand surgery as well as co-head of the skin cancer center at the Cantonal hospital Aarau. The reconstruction transplantation team is currently being reorganized.

6 Annex

6.1 Staff structure of the Transplantation Center 2020

	Board of Directors	Board of Trustees
Management	**Head** Prof. Nicolas Müller	**Chairman** Prof. Dr. Frank Ruschitzka
Heart	Prof. Markus Wilhelm PD Dr. Andreas Flammer	Prof. Dr. Paul Robert Vogt a.i. Prof. Dr. Frank Ruschitzka
Lung	PD Dr. Sven Hillinger Dr. Carolin Steinack	Prof. Dr. Ilhan Inci PD Dr. Macé Schuurmans
Liver	Prof. Philipp Dutkowski vacant	Prof. Dr. Pierre-Alain Clavien Prof. Dr. Beat Müllhaupt
Kidney	Prof. Thomas Müller Dr. Olivier de Rougemont	Prof. Dr. Pierre-Alain Clavien Prof. Dr. Rudolf Wüthrich
Pancreas and islet cells	Prof. Roger Lehmann	Prof. Dr. Pierre-Alain Clavien Prof. Dr. Felix Beuschlein
Small intestine and multi-visceral transplantation	vacant	Prof. Dr. Pierre-Alain Clavien
Stem cells	PD Dr. Urs Schanz PD Dr. Antonia Müller	Prof. Dr. Markus Manz
Reconstructive transplantations	Prof. Jan Plock	
Consiliary services	Prof. Nicolas Müller, Infectiology Dr. Mirjam Nägeli, Dermatology Dr. Andre Richter, Psychiatry	Prof. Dr. Michael Weller
Anesthesiology	Prof. Marco Zalunardo	Prof. Dr. Donat Spahn
Transplantation immunology laboratory	Dr. med. Ph.D. Jakob Nilsson	Prof. Dr. Onur Boyman
Care	Kuno Betschart Ramona Odermatt	Kuno Betschart
Intensive care	Dr. Stephanie Klinzing	Prof. Reto Schüpbach
Transplant coordination	Lea Kinteh-Vischherr	
Research	Prof. Rolf Graf Dr. Lucia Bautista Borrego	
Quality management	Uschi Schäfer	
Clinic Manager	Karl-Heinz Heidenreich	
Dean		Prof. Dr. Rainer Weber

International Advisory Board

Heart	Prof. Mandeep R. Mehra, USA
Lung	Prof. John Dark, UK
Liver	Prof. Xavier Rogiers, Belgium†
Kidney	Prof. Christophe Legendre, France
Pancreas and islet cells	Prof. Eelco de Koning, Netherlands
Stem cells	Prof. Ernst Holler, Germany
Anesthesiology and intensive care	Univ. Prof. Michael Hiesmayr, Austria

Local Advisory Board of the Transplantation Center

Bellinzona	Ospedale San Giovanni	Prof. Dr. med. Claudio Marone
Chur	Cantonal/Regional hospital	PD Dr. med. Reto Venzin
Faltigberg-Wald	Züricher Höhenklinik Wald	PD Dr. med. Matthias Hermann
Frauenfeld	Cantonal hospital	Dr. med. Markus Hugentobler
Gais	Klinik Gais AG	Dr. med. Angelika Bernardo
Lucerne	Cantonal hospital	Dr. med. Dominique Criblez
Seewis	Rehabilitation center	Dr. med. Willhard Kottmann
St. Gallen	Cantonal hospital	Dr. Dr. med. David Semela
Winterthur	Cantonal hospital	Dr. med. Thomas Kistler
Zollikerberg	Zollikerberg Hospital	Dr. med. Jörg Bleisch
Zurich	Waid Hospital	Prof. Dr. med. Patrice Ambühl

6.2 Transplantation activities 2010–2020

Organ	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Heart total	**12**	**14**	**11**	**10**	**16**	**14**	**10**	**17**	**16**	**11**	**11**
Heart and kidney	0	0	0	1	1	0	0	0	0	0	0
Lung total	**26**	**30**	**33**	**28**	**32**	**31**	**23**	**14**	**19**	**17**	**24**
– of which DCD	0	0	2	5	5	5	3	2	3	4	5
Liver total	**45**	**47**	**43**	**41**	**43**	**59**	**52**	**64**	**54**	**64**	**52**
NBHD single-liver	41	39	39	27	28	44	34	37	37	61	49
– of which DCD	0	1	3	9	12	12	6	21	12	22	9
Living donor liver	2	7	4	2	2	2	7	5	4	1	3
Liver and kidney	2	1	0	2	1	1	4	1	1	2	2
Liver and small intestine	0	0	0	1	0	0	1	0	0	0	0
Kidney total	**88**	**100**	**84**	**87**	**84**	**96**	**88**	**104**	**100**	**91**	**97**
NBHD single-kidney	44	57	47	47	44	62	48	54	58	60	760
– of which DCD	0	6	9	6	11	6	9	18	4	22	21
Living donor kidney	30	32	22	22	22	23	22	23	30	20	21
Kidney and pancreas	9	9	10	11	5	3	4	4	5	8	8
Kidney and islet cells	3	1	1	1	1	1	1	3	2	1	0
Kidney and heart	0	0	0	1	0	0	0	1	0	0	0
Kidney and liver	2	1	0	2	1	1	4	1	1	2	2
Pancreas total	**9**	**11**	**12**	**15**	**7**	**3**	**4**	**4**	**5**	**8**	**8**
Pancreas only	0	1	2	3	2	0	0	0	0	0	0
Pancreas and kidney	9	9	10	1	5	3	4	4	5	8	8
Pancreas/small intestine	0	1	0	1	0	0	0	2	0	0	0
Islet cells total	**9**	**6**	**5**	**5**	**6**	**3**	**6**	**5**	**2**	**1**	**0**
Islet cells only	6	5	4	4	5	2	4	2	0	0	0
Islet cells and kidney	3	1	1	1	1	1	1	3	2	1	0
Small intestine / multivisceral	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Stem cells total	**119**	**147**	**128**	**139**	**151**	**150**	**150**	**148**	**174**	**168**	**170**
– autologous	65	95	77	92	98	92	94	93	107	100	88
– allogeneic	54	52	51	47	53	58	56	55	67	68	84

Multi-organ donations at UHZ	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Donors from USZ	**7**	**5**	**12**	**18**	**17**	**24**	**14**	**23**	**17**	**33**	**26**
– of which DCD	0	3	6	9	12	12	4	17	5	16	11
Donors from ZH network	**3**	**7**	**7**	**6**	**9**	**10**	**13**	**8**	**9**	**10**	**12**
Total donors UHZ plus network	**10**	**12**	**19**	**24**	**26**	**34**	**27**	**31**	**26**	**43**	**38**

6.3 Outcome of organ transplantations

The results for all centers nationwide have been published since 2013. This is in accordance with the Transplantation Act and Ordinance.

The "STCS Annual Report" is publicly available at www.stcs.ch

6.4 International Advisory Board (IAB) Meeting 2020

Nicolas Müller, Head of Transplantation Center

Minutes of the International Advisory Board Meeting 2020

Day and time: Tuesday, 17 November 2020, 9 a.m. to 11 a.m.
Town/city: Via Skype

Present:

On behalf of IAB: Prof. E. de Koning, Prof. C. Legendre, Prof. J. Dark, Prof. M. Hiesmayer, Prof. M.R. Mehra
Excused: Prof. E. Holler

On behalf of the Board of Trustees: Prof. Dr. F. Ruschitzka, Prof. P.-A. Clavien, Prof. I. Inci, PD Dr. M. Schuurmans, Prof. R. Wüthrich, Prof. M. Weller, Prof. Dr. P. Giovanoli, Prof. R. Schüpbach, PD Dr. U. Schanz, Prof. O. Boymann

On behalf of the Board of Trustees, Prof. F. Ruschitzka welcomes the members of the International Advisory Board. In a brief review, P.-A. Clavien commemorates Prof. X. Rogiers, who passed away at the end of 2019.

The focus of the meeting is on donor development and the Transplantation Center Annual Report. The various programs are then briefly presented by the respective representatives, with comments from members of the IAB.

6.5 Scientific publications in 2020

Dermatology:

1. Stenz N, Stampf S, Arnold AW, Cozzio A, Dickenmann M, Gaide O, Harms M, Hunger RE, Laffitte E, Mühlstädt M, Nägeli M, Hofbauer GFL. and the Swiss Transplant Cohort Study.
Skin cancer in solid organ transplant recipients in Switzerland (Swiss Transplant Cohort Study).
Dermatology. 2020;1-11. doi: 10.1159/000510685

Heart:

2. Abdel-Sayed S, Ferrari E, Abdel-Sayed P, Wilhelm M, Halbe M, von Segesser LK, Maisano F, Berdajs D.
New bidirectional arterial perfusion device.
Int J Artif Organs. 2020;43(7):433-436. doi: 10.1177/0391398820901842.

3. Balcova J, Nagaraj NG, Maggiorini M, Albrecht R, Wilhelm MJ, Maisano F, Reser D.
First report about a successful ECLS implantation and subsequent helicopter transfer of a super obese patient with a BMI of 78 kg/m².
Gen Thorac Cardiovasc Surg 2020;68:1506-1508.

4. Chioncel O, Parissis J, Mebazaa A, Thiele H, Desch S, Bauersachs J, Harjola VP, Antohi EL, Arrigo M, Gal TB, Celutkiene J, Collins SP, DeBacker D, Iliescu VA, Jankowska E, Jaarsma T, Keramida K, Lainscak M, Lund LH, Lyon AR, Masip J, Metra M, Miro O, Mortara A, Mueller C, Mullens W, Nikolaou M, Piepoli M, Price S, Rosano G, Vieillard-Baron A, Weinstein JM, Anker SD, Filippatos G, Ruschitzka F, Coats AJS, Seferovic P.
Epidemiology, pathophysiology and contemporary management of cardiogenic shock – a position statement from the Heart Failure Association of the European Society of Cardiology.
Eur J Heart Fail. 2020;22(8):1315-1341. doi: 10.1002/ejhf.1922. Epub 2020 Jul 16.PMID: 32469155

5. Čelutkienė J, Lainscak M, Anderson L, Gayat E, Grapsa J, Harjola VP, Manka R, Nihoyannopoulos P, Filardi PP, Vrettou R, Anker SD, Filippatos G, Mebazaa A, Metra M, Piepoli M, Ruschitzka F, Zamorano JL, Rosano G, Seferovic P.
Imaging in patients with suspected acute heart failure: timeline approach position statement on behalf of the Heart Failure Association of the European Society of Cardiology.
Eur J Heart Fail. 2020;22(2):181-195. doi: 10.1002/ejhf.1678. Epub 2019 Dec 9.PMID: 31815347

6. Manka R, Karolyi M, Polacin M, Holy EW, Nemeth J, Steiger P, Schuepbach RA, Zinkernagel AS, Alkadhi H, Mehra MR, Ruschitzka F.J.
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6.6 Transplantation awards 2020

On the occasion of the fall symposium in November 2020, the USZ Transplantation Center awards were held for the tenth.. The awards were once again generously sponsored by Astellas Pharma and were presented by Prof. Markus Wilhelm, member of the Board of Directors' Awards Committee. Prizes were awarded for a an experimental study and a clinical trial as well as the merit award.

- **Clinical scientific award**
  Matteo Müller
  «Hypothermic Oxygenated Liver Perfusion (HOPE) Prevents Tumor Recurrence in Liver Transplantation From Donation After Circulatory Death»

- **Experimental scientific award**
  Dr. med. Steffen Böttcher
  Dr. med. Christian Matthias Wilk
  «Clonal hematopoiesis in donors and long-term survivors of related allogeneic hematopoietic stem cell transplantation»

- **Merit award**
  Erik Aerts
  Patrizia Zala

6.7 Professional development program 2020

Monthly seminar: "Hot topics in transplantation" (TNT) 2020

Programm

Datum	Titel	Referent	Host
24.02.2020	Frailty – körperliche Fragilität und Transplantabilität	**Dr. med. Michael Gagesch** Oberarzt Klinik für Geriatrie UniversitätsSpital Zürich	Prof. Dr. med. Thomas Müller
28.09.2020	COVID 2020	**Prof. Nicolas Müller** **Prof. Thomas Müller** Transplantationszentrum UniversitätsSpital Zürich	Prof. Dr. med. Nicolas Müller

Organisation
PD Dr. Sven Hillinger
Prof. Dr. Roger Lehmann
Prof. Dr. Nicolas Müller
PD Dr. Urs Schanz
Prof. Dr. Thomas Müller

Auskunft
Klinik für Infektiologie
Dr. Elisabeth Hasse
+41 44 255 96 60
transplantationszentrum@usz.ch

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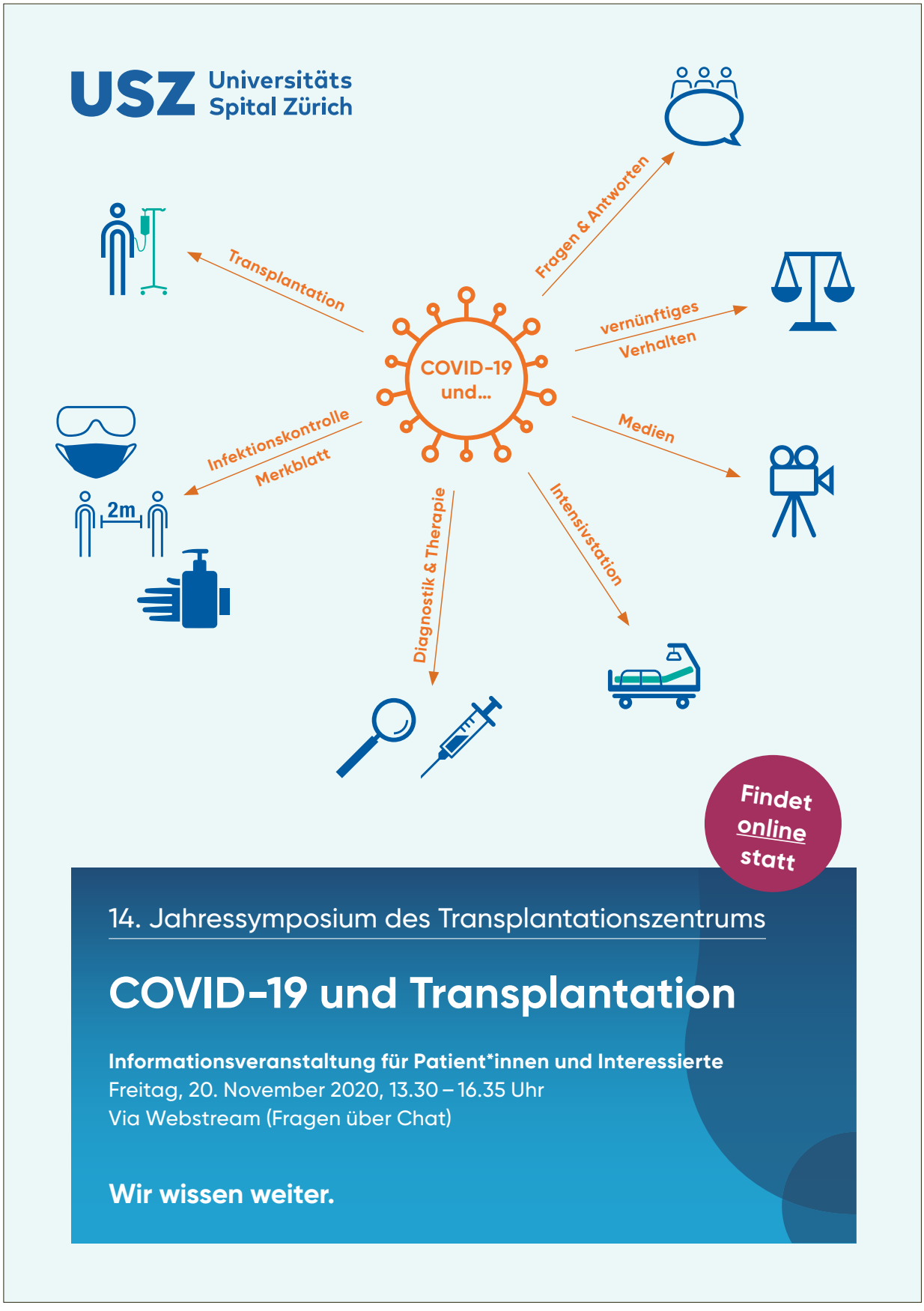
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Transplantation
vernünftiges Verhalten
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2m
Findet online statt
14. Jahressymposium des Transplantationszentrums
COVID-19 und Transplantation
Informationsveranstaltung für Patient*innen und Interessierte
Freitag, 20. November 2020, 13.30 – 16.35 Uhr
Via Webstream (Fragen über Chat)
Wir wissen weiter.

Programm

13.30 Uhr	**Grusswort** Pietro Giovanoli, USZ
13.40 Uhr	**Übersicht zur Veranstaltung** Thomas Müller, Nicolas Müller, USZ
13.50 Uhr	**COVID-19 und Knochenmarkstransplantation** Urs Schanz, USZ
14.05 Uhr	**COVID-19 und Nierentransplantation** Thomas Müller, USZ
14.20 Uhr	**Infektionskontrolle – Unser Merkblatt** Nicolas Müller, USZ
14.30 Uhr	**Neues aus Diagnostik und Therapie** Nicolas Müller, USZ
14.40 Uhr	**Kurze Pause**
14.45 Uhr	**Verleihung der Transplantationspreise** Markus Wilhelm, USZ
15.05 Uhr	**COVID-19 und Intensivmedizin** Florian Furrer, USZ
15.15 Uhr	**COVID-19 und Advance Care Planning** Tanja Krones, USZ
15.25 Uhr	**COVID-19 und die Medien** Felicitas Witte, Journalistin
15.40 Uhr	**COVID-19 und vernünftiges Verhalten** Mareile Flitsch, Direktorin, Universität Zürich, Völkerkundemuseum
15.55 Uhr	**Kurze Pause**
16.00 Uhr	**Fragen und Antworten** Alle Speaker sowie Margit Schwikowski-Gigar, Chemikerin, Paul Scherrer Institut
16.30 Uhr	**Schlusswort und Dank** Thomas Müller, Nicolas Müller, USZ
16.35 Uhr	**Ende der Veranstaltung**

Teilnahme
Die Veranstaltung findet online über folgenden Link statt:
https://COVID-19-Transplantation-usz.myhealthcare.ch/
Keine Anmeldung erforderlich. Sie können Fragen vorab per Mail an uns senden transplantationszentrum@usz.ch

Organisation und Kontakt
Transplantationszentrum USZ
Rämistrasse 100, 8091 Zürich
transplantationszentrum@usz.ch
www.transplantation.usz.ch

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