



Annual report 2016

# Transplantation Center



UniversityHospital  
Zurich

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## The Transplantation Center in its 10th year of operation

### Summary

Nicolas Müller – Head of the Transplantation Center

### Transplant activity

The overall number of transplanted organs decreased slightly, due to a nationwide 20% reduction in available donors (see figure). Note the increase in living liver donation.

### Boards and authorities

The new International Advisory Board met for the first time on November 17, 2016.

The main topic was the introduction of benchmarking for liver and lung transplants. Submission preparation for the allocation of highly specialized medicine for 2017 has been initiated.

### Research and training

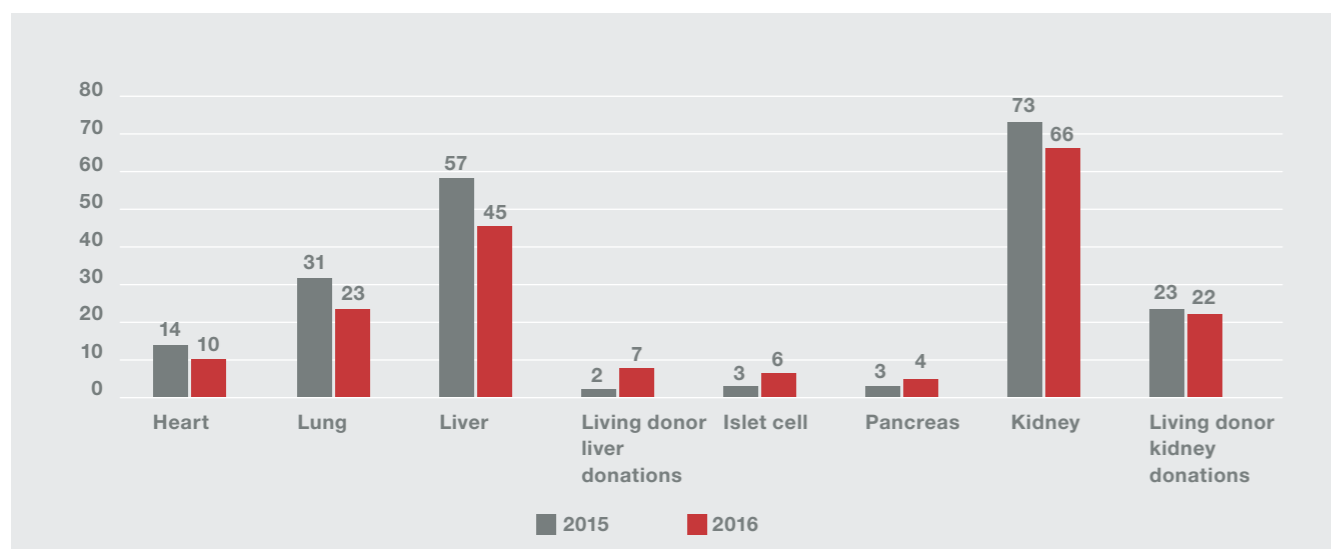
The center was highly successful once again this year with 80 publications. Special mention should be given to the acceptance of two clinical trials by the Swiss National Science Foundation as part of the new Investigator Initiated Clinical Trials (IICT) program. The tenth annual

symposium was held in on November 17, 2016, under the title 'The current challenges of transplantation in Zurich and abroad.

### Objectives for 2017

- Due to the significant increase in referrals and evaluations of potential donors for a living donor kidney transplant, the objective for 2017 is to increase the number of kidney transplants through living donors to 10–15% (or 3–5) without compromising donor safety.
- Approval for hand and face transplants by the Federal Office of Public Health (FOPH)
- FOPH approval for uterus transplants
- Successful evaluation by HSM board.
- Continuation of the benchmarking program with active participation
- Participation in various personalized medicine initiatives
- Submission for continuation of funding for the Swiss Transplant Cohort Study

### Number of Transplantation Center organ transplants in 2015 and 2016



The number of deceased organ donors in Switzerland fell by around 22% in 2016 compared with the previous year, which explains the lower number of transplants.

## Center-specific and integrative functions

### Transplant coordination

Werner Naumer, Head of Transplant Coordination and Martin Wendt, deputy

The development process for the transplant coordination team was consolidated in 2016. All team members remained in their posts and were able to offer each other support and help by drawing on their cumulative expertise. A key aim for the year was to reduce the amount of overtime accumulated among employees. Various measures were taken to agree on rules that made it possible to bring all employees back within the required limits. This included early holidays and planning days off in lieu. The transplant coordination team leader also made an active contribution to solving this issue by starting a Certificate of Advanced Studies (CAS) postgraduate course. As part of a practical project, he developed a plan that placed all team members in a position to either familiarize themselves with the other organ programs or to cover colleagues in case of absence. This project was successfully implemented, resulting in better coverage for the organ program during staff absences.

In spite of the falling number of organ donations in 2016, we were able to report an increase in evaluations for both the kidney and liver programs. The growing number of patients on waiting lists also made the above-mentioned measures particularly effective and compensated for the increased workload.

The positive growth trend in evaluations for liver donations from living donors also continued in 2016. Quality was able to be improved via targeted measures in the evaluation process. In addition, the green light was given to develop a new brochure on living donor liver donation. A nursing science student from the University of Basel was also brought on board to research the scientific framework and prepare the brochure in collaboration with the relevant subject areas. At the end of the year, we recorded a significant increase in living donor liver transplants.

Another priority in the first half of 2016 was to strengthen collaboration with external nephrologists. The relevant staff in transplant coordination held face-to-face conversations with all referring doctors in order to discuss proposed procedural improvements and have a positive influence on secure data transfer.

When a colleague went on maternity leave halfway through the year, the position was quickly advertised and a new colleague was brought on board. After a successful training period, she quickly joined the living donor kidney donation program, thereby guaranteeing the continuity of the processes.

For quality assurance purposes, successful audits of the organ programs were carried out in collaboration with the Transplantation Center Quality Manager, and weaknesses were identified. The quality indices introduced at the start of the year were implemented in day-to-day operations. This meant that they were able to provide important information about potential areas for improvement in the organ programs at the end of the year.

A highlight of last spring was a barbecue for all living donor partners in the university hospital gardens. Around 100 patients and doctors were in attendance. All attendees spent an evening together, resulting in many interesting conversations.

### Human resources:

Six persons are employed in transplant coordination.

The FTE for each staff member is as follows:

Naumer, Naumer	100 %	
Wendt, Martin	100 %	
Kokkonen, Sanna	80 %	
Neff, Martina	100 %	until maternity leave
Eugster, Mia	80 %	
Cornelia, Neff	100 %	from July
Reh, Therese	60 %	(not included in on-call service)

At the end of 2016, this meant coverage of 480 per cent in terms of posts available for the on-call service. This on-call service extends over 24 hours / 365 days per year. In total, around 1,180 hours were coordinated in 2016. Most of these were evenings or weekends.

Coordination: 118  
Foreign offers: 340

Patient care:  
The following figures were recorded for patient care:

<b>Living donor kidney donations</b>	
Stage I and II evaluations	110
Transplants	22

<b>Living donor liver donations</b>	
Stage I and II evaluations	32
Transplants	8

Events:  
– Information evening for kidney patients (four times per year)  
– Liver information afternoon (May 2016)

Project work:  
– University Hospital Zurich (UHZ) SOAS data transfer  
– FOPH SOAS reimplementation  
– STATKO  
– SDTA  
– STALOS

- New living donor liver donation brochure
  - Face and hand transplant process
  - Uterus transplant process
  - Quality assurance
- Presentations:
- Medilab Bern
  - Speech to delegation of Japanese throat surgeons from Tokyo
  - ZINA, Waidspital Nephrology
  - Various training sessions on UHZ wards

Learner support:  
– Interview for care work  
– Written collaboration

Ongoing professional development:  
– Thun STS  
– DSO Frankfurt  
– TPM Barcelona  
– Lifeport  
– EDTCO Brussels  
– UHZ Transplantation Center fall symposium  
– Grand rounds

**Interdisciplinary HLA Typing Laboratory**  
Barbara Rüsi – Head of Interdisciplinary HLA Typing Laboratory

In Switzerland, organ allocations are regulated by the Transplantation Act, Transplantation Ordinance, Organ Allocation Ordinance, and the EDI Organ Allocation Ordinance. The specific calculations for allocating organs are based on a criteria-based algorithm.

As well as taking urgency, age, blood group and tissue compatibility into account, organ allocation also depends on anti-HLA antibodies.

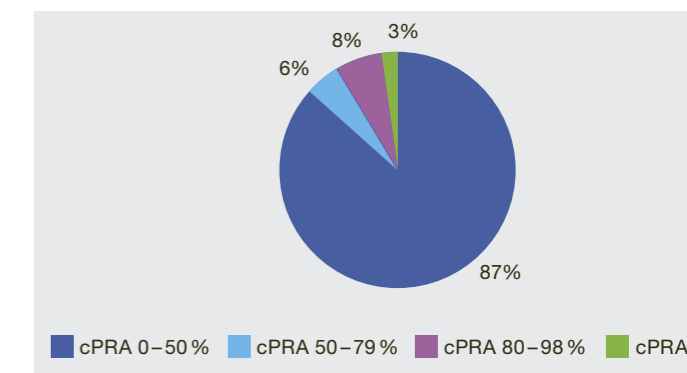
Extract of EDI Organ Allocation Ordinance dated May 2, 2007 (status as of June 1, 2015)

- Art. 141 Tissue compatibility**
- <sup>1</sup> Kidneys should be allocated as a third-level priority to patients who have:
- a. no donor-specific anti-HLA antibodies; or;
  - b. at least as many donor-specific anti-HLA antibodies as the National Organ Allocation Office permits.
- <sup>2</sup> The National Organ Allocation Office only permits donor-specific anti-HLA antibodies:
- a. with a mean fluorescence intensity below 10,000; or
  - b. which present no increased risk of organ rejection.
- <sup>3</sup> The approved level of donor-specific anti-HLA antibodies should be calculated so that every patient can receive an available organ from at least 2 per cent of the donors eligible for them. The calculation is based on all donor data collected to date.
- <sup>4</sup> The level of donor-specific anti-HLA antibodies to be approved should be calculated following inclusion on the waiting list. This should always be recalculated at the start of the calendar year or if new information becomes available about a patient's donor-specific anti-HLA antibodies.

The calculation of a patient's donor-specific anti-HLA antibodies is stated in percentage terms as cPRA (Calculated Panel Reactive Antibodies). The cPRA stands for the probability that a recipient has a virtually positive cross-match with a donor.

In Zurich, 375 patients are currently on the waitinglist for a kidney transplant (as of January 31, 2017).

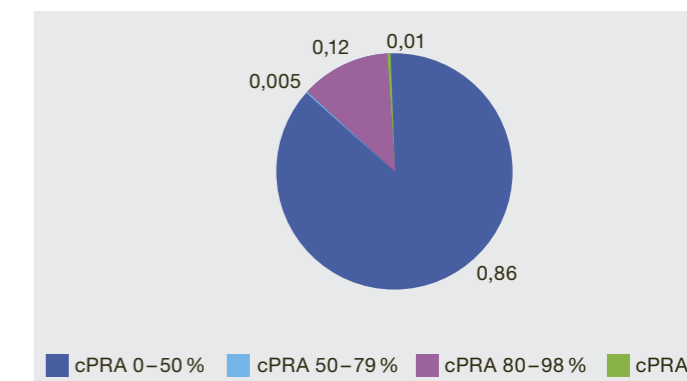
**cPRA waiting list distribution as of January 31, 2017**



325 patients with cPRA of 0–50%  
21 patients with cPRA of 50–79%  
30 patients are highly immunized with cPRA of 80–98%  
10 patients are hyperimmunized with cPRA >98%. With these patients, the legally required 2% rule can no longer be followed, and one or more donor-specific HLA antibodies must be accepted.

In 2016, 66 kidneys (two en bloc) from deceased donors were transplanted in Zurich.

**cPRA post-mortem transplant distribution 2016**



57 transplant patients with cPRA of 0–50%  
Eight of the transplant patients were highly immunized with cPRA of 80–98%  
One hyperimmunized patient (cPRA of 99.67%) with blood group O was able to receive a transplant with a donor-specific antibody after a waiting time of over two years.



## Transplantation Center Research Highlights

### Heart transplant

One research highlight for our team was the completion and publication of the global multi-center study that we initiated and headed from Switzerland: TRUE-AHF (Trial of Ularitide's Efficacy and safety in Acute Heart Failure; NEJM 2017: 376(20):1956-1964). This phase III endpoint study included more than 2,100 patients with extremely advanced acute heart failure at 156 clinical centers in 23 countries. TRUE-AHF was carried out with the natriuretic peptide urodilatin, which is synthesized in the distal tubule of the kidney. In TRUE\_AHF, urodilatin improved the afterload, i.e. the "in-hospital worsening effect", but did not have any impact on the primary endpoint, namely cardiovascular mortality.

### Reconstructive transplantation

In the field of reconstructive transplantation, the choice of suitable patients for whom the transplant offers a psychosocial benefit and improved quality of life first and foremost is based on a risk-benefit analysis. Of note, severe disfigurement due to accidental burns often result in a sensitization of patients, rendering a transplantation more risky. This aspect has been studied only very little so far. In our review, we were able to show the current state of research as part of an international collaboration project.

Little research has been conducted into optimizing the functional outcome of reconstructive transplantation by improving nerve regeneration. In a molecular biology study, we were able to highlight new aspects .

Sensitization and desensitization of burn patients as potential candidates for vascularized composite allotransplantation.

Klein HJ, Schanz U, Hivelin M, Waldner M, Koljonen V, Guggenheim M, Giovanoli P, Gorantla VS, Fehr T, Plock JA. Burns. 2016 Mar;42(2):246-57. doi: 10.1016/j.burns.2015.05.019. Epub 2015 Sep 29. Review.

IGF-1 and Chondroitinase ABC Augment Nerve Regeneration after Vascularized Composite Limb Allotransplantation. Kostereva NV, Wang Y, Fletcher DR, Unadkat JV, Schnider JT, Komatsu C, Yang Y, Stolz DB, Davis MR, Plock JA, Gorantla VS. PLoS One. 2016 Jun 7;11(6):e0156149. doi: 10.1371/journal.pone.0156149. eCollection 2016.

### Allogenic stem cell transplantation

Transfusion refractoriness due to platelet alloimmunization can represent an absolute contraindication for the successful treatment (i.e. myelosuppressive chemotherapy and stem cell transplantation) of HLA-alloimmunized patients with leukemia. We were able to show that such treatment can be carried out safely and effectively with cryopreserved autologous thrombocytes.

Safety and efficacy of cryopreserved autologous platelet concentrates in HLA-alloimmunized patients with hematologic malignancies. Gerber B, Alberio L, Rochat S, Stenner F, Manz MG, Buser A, Schanz U, Stussi G. Transfusion. 2016 Oct;56(10):2426-2437. doi: 10.1111/trf.13690. Epub 2016 Jun 24.

### Collaboration in national and international committees

#### Nicolas Müller

Chairman of the Scientific Committee of the Swiss Transplant Cohort Study

Member of the Scientific Committee of the Swiss Society of Transplantation  
Editorial Board of Xenotransplantation; Transplant Infectious Diseases

#### Roger Lehmann

President of the Central European Diabetes Association (FID) 2013–2017  
Board Member of the European Pancreas and Islet Transplant Association 2013–2017

#### Thomas Müller

Living Donation Advisory Committee of the Canadian Blood Services

– Publication of the Guidelines in Transplantation 2015, ending his membership in this committee

Member of the boards/scientific committees

- STAN
- STALOS
- SOL-DHR

Swiss Kidney Paired Donation Program

– Co-Director of the Steering Committee on Establishing Guidelines for Cross-over Transplantation

Advisory Board for Sanofi on Immunological Risk Assessment

#### Josef Jenewein

President of the Swiss Society of Consultation-Liaison Psychiatry (SSCLP)  
Board Member of the European Association of Psychosomatic Medicine (EAPM)

#### Olivier de Rougemont

Member of the boards: STAN, STALOS, STAP (President)  
Scientific committee: Swiss Transplant Cohort Study

#### Jan Plock

Basic Science Committee ESOT, since 2015

#### Urs Schanz

President of Swiss Blood Cell Transplantation (SBST)  
Member of the Allogenic Stem Cell Transplantation Commission (KAT)  
Board of Directors, Swiss Transfusion SRC  
Member of the EBMT Nuclear Accident Committee (NAC)  
Hepatitis C working group in transplantation section of the Swiss Red Cross Blood Donor Service  
Senior editor: Transfusion and Apheresis Science (2013–2015)  
Editorial Board Member of Transfusion and Apheresis Science since 2016

#### Frank Ruschitzka

President of the Heart Failure Association of the European Society of Cardiology  
2016 ESC guidelines for the management of atrial fibrillation developed in collaboration with EACTS  
2016 ESC guidelines on acute and chronic heart failure

#### Markus Wilhelm

President of the Heart working group at Swisstransplant  
Member of Swisstransplant Comité Médical  
Transplantation Center representative on STCS Board of Representatives

#### Christian Benden

STALU, President elect  
ISHLT, Member of Board of Directors  
ISHLT, Scientific Program Chair 2018  
IPTA, Education Committee Chair

#### Journals:

- JHLT, Editorial Board Consultant
- Pediatric Transplantation, Associate Editor
- Clinical Transplantation, Associate Editor

#### Ilhan Inci

STALU

#### Günther Hofbauer

President of SCOPE (Skin Care in Organ Transplant Patients Europe)

#### Mjriam Nägeli

Academic Secretary of SCOPE (Skin Care in Organ Transplant Patients Europe)

#### Training

*Prof. Nicolas Müller – Member of TNT Organizing Committee*

Our seminar entitled Hot Topics in Transplantation (TNT) (TNT Annual program 2016) once again showed the range of scientific activities underway at local and international level, as reflected in the list of internationally renowned speakers. This was only possible with generous sponsorship (Astellas Pharma AG, MSD AG, Novartis Pharma Schweiz AG, Pfizer AG, Sanofi and Roche Pharma (Schweiz) AG), and we would like to take this opportunity to express our sincere gratitude.

#### Swiss Transplant Cohort Study (STCS)

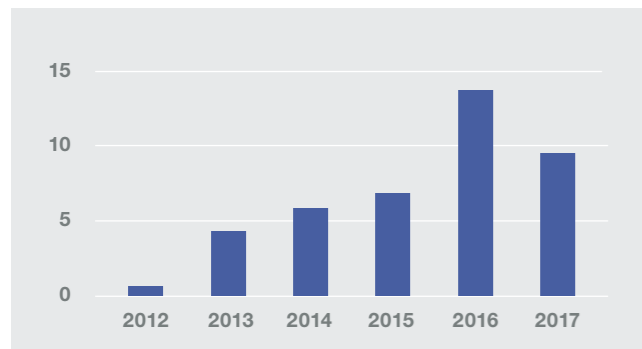
*Prof. Dr. Nicolas Müller, Chairman of the STCS Scientific Committee*

The Swiss Transplant Cohort Study (www.stcs.ch) will once again be subject to a major evaluation in 2017. The significance of this unique global data collection increases with every year of follow-up monitoring. Within the STCS, there are more than 105 ongoing projects, and Zurich participates in the majority of them. The growing use of the data and sample bank is reflected in the number of publications directly based on the STCS over the last five years.

## General care of transplant recipients at the Transplantation Center

Zurich is responsible for the majority of the patients enrolled: of 5,617 patients in total, 1,965 or one-third received transplants at the Zurich Transplantation Center. Ensuring that sample and data collection is performed as effectively as possible represents a major logistical challenge. Sincere thanks are due to all those involved.

### Publications



### Anesthesiological aspects of transplantation

*Prof. Dr. Marco P. Zalunardo, Dr. med. Rolf Schüpbach*

#### Organization

It is now finally possible to determine who is responsible for patients who are summoned for a liver transplant at the OP, but who are urgently transferred for a perioperative kidney substitute procedure. In conjunction with the Department of Nephrology and AIO, an interdisciplinary and interprofessional agreement has been concluded in order to ensure timely medical treatment. A binding clinical treatment pathway was set out as part of a joint effort.

#### Clinical operations

University Hospital Zurich reported an approx. 10% decline on the previous year (2015) for all transplanted organs. Transplantation activity came to a partial standstill over the summer months. Only the liver transplant program showed a clear increase at the end of the year. However, this still remained below the previous year's figures.

The worrying decline in transplant figures was reported across all Swiss transplantation centers. The topic was discussed in detail at various meetings between the transplant teams at UHZ and at meetings between national organizations in Switzerland. Other than a lack of donors – which was already well-known – no new reasons for the drop were identified.

### Nursing care at the Transplantation Center

*Beatrice Biotti – nursing representative*

#### Inpatient transplant care

Since 2015, patients receiving kidney and liver transplants have been instructed in self-management after an organ transplant in the form of brochure 2. Coordination between the educational topics provided by the nursing team on transplant ward Ost E III and the training content from the advanced nursing practice (ANP) consultations was improved, and the relevant guidelines and favorites in the electronic patient documents were adjusted accordingly. A new structured patient training program for the self-administration of intravenous antibiotics at home was implemented for post-lung transplant patients. The nursing team was trained in advance to deliver the new educational program. New short film clips to illustrate the training

topics and the brochure titled “Administering intravenous treatment at home” are available as supporting materials for intravenous self-treatment training. The responsibilities for planning the discharge of post-lung transplant patients from hospital have been changed and the nursing processes and activities have been adapted accordingly.

### Swiss transplant care network

Management changes have been made in the Swiss transplant care network and the associated Swiss transplant working group of nurses (STAPF). Ramona Odermatt, a specialist nurse in the Abdominal and Metabolic Surgery division of UHZ, has served as the President of the network and STAPF since May 2015. Sandra Schönfeld, a specialist nurse in nephrology at University Hospital Basel, is the newly appointed co-president. The network and STAPF promote the exchange of knowledge and subject-specific expertise among qualified nurses in the field of transplantation. Two network meetings were held in Bern in May and October. Six nursing-specific educational lectures constituted part of these meetings.

The Swiss transplant care network receives extensive support from the sector Abdomen/Metabolism of the UHZ. Preparatory work started in 2014 for a new Certificate of Advanced Studies (CAS) in transplant care. This continued to be developed in conjunction with the transplant care network and Kaleidos University of Applied Sciences. The definitive version of the new specialist transplant module in the transplant care CAS was launched in March 2016.

### “Kidney transplantation” ANP

#### APN care consultations

One-off training and advice for all new transplant recipients: as part of the advanced practice nurse (APN) care consultations, a total of 354 training, information and advice sessions were provided by the APN to post-kidney transplant patients. Relatives were eligible to attend some of these sessions. Some of the sessions that took place as part of the study were conducted by telephone. The internet version of the kidney transplant nursing consultations was finalized and launched.

### “Transplant patients support transplant patients” program

Two patients on the waiting list for a kidney transplant were each put in contact with an experienced transplant recipient to share their experiences.

### Transition program

As part of a transition afternoon organized jointly with University Children's Hospital Zurich, nine young transplant recipients traded places with adult medical services in November. All received a status review and took part in an advice session (with a parent if they wished). They were also accompanied by the Advanced Practice Nurse as required.

### “ANP health behavior education program” study

In 2016, a further 36 participants were included in the study titled “Impact of an advanced nursing practice education program on weight gain, mobility and drug intake for patients in the first year after kidney transplantation”. Recruitment was concluded with a total of 123 participants in accordance with the decision of the Steering Committee in late 2016.

### Patient information events

Zala, P. (October 25, 2016). Il percorso dalla chiamata per il trapianto al rientro a casa. Presentazione alla serata informativa per pazienti in lista d'attesa per un trapianto di rene, Ospedale Regionale di Lugano.

### Conference presentations

Zala, P. (November 18, 2016). Prevention of weight gain and promotion of day-to-day physical activity in patients after a kidney transplant. Verbal presentation at the tenth three-country conference on nephrological care, Constance, Germany.

## Organ donation network

### Organ donation activities 2016

The activities of the Donor Care Association have been covered in a separate report since the division of the organ donation side from the recipient side.

## “Liver transplantation” APN

### Liver transplant nursing consultations

Liver transplant nursing consultations are offered by a specialist advanced practice nurse (APN). Individualized training and advice are provided during the consultation. The objective is to provide patients and family members with continuous support before and after the transplant. Those involved receive personal support and learn about self-management of the disease and its symptoms.

In 2015, a total of 151 consultations were conducted, of which 86 took place before and 65 after the transplant. Focal points prior to the transplant include: symptom management, organization of waiting list, health (e.g. quitting smoking, maintaining nutrition levels and exercise) and emotional handling of the situation. Following the transplant, the focal points are: drug intake, prevention of infection, self-monitoring, organ rejection, sun protection, health behavior.

### Information brochures

In addition to the consultations, patients and family members receive the following brochures: “Preparing for a liver transplant” and “Life after a liver transplant”. The brochures also serve as the basis for the structured education after the transplant, which is conducted in close cooperation with the nursing team of the inpatient wards E Ost 3 and D Ost 4. The UHZ brochures are also used at St. Gallen Cantonal Hospital and the Davos Clavadel rehabilitation clinic. Both institutions are key partners in the care process for liver transplant patients. The brochures and/or individual topics will be translated at a later date. A brochure on living donor liver donation is currently being written.

### Accompanying research to evaluate liver transplant nursing consultations

A “before-and-after” study is looking into patient evaluations of nursing care in the case of chronic disease. The “before” rating was conducted via a questionnaire in July 2014, with the “after” rating conducted in spring 2016. A further study to evaluate liver transplant nursing consultations is planned.

### Conference presentations

Beckmann S. and Künzler-Heule P. (June 17, 2015). Bridging the gap between institutions: continuous nursing care and self-management support throughout the liver transplant process. Verbal presentation at the sixth symposium of the Swiss Clinical Trial Organisation (SCTO), St. Gallen, Switzerland.

Beckmann S. and Künzler-Heule P. (September 4-5, 2015). Continuity in patient care, pre- and post-liver transplant – cross-hospital collaboration of APNs. Verbal presentation at the third international Advanced Practice Nursing & Advanced Nursing Practice Conference, Munich, Germany.

### Peer-reviewed publication

Beckmann S., Künzler-Heule P., Biotti B., Spirig R. Mastering together the highs and lows – Patients’ and caregivers’ perceptions of self-management in the course of liver transplantation. Progress in Transplantation. Accepted for publication.

## Ost E III nursing

### Inpatient transplant care

One key event of 2016 for the Ost E III transplant ward was the change in ward nurse manager at the end of the year. After many years of hard work and dedication to transplant care, former ward nurse manager Margret Soback retired. She had a huge impact on developing the transplantation unit and its quality of nursing over many years. Barbara Wyss was appointed as her successor to this demanding role.

Transplantation nursing care continued to focus on the different structured education programs following organ transplantation. The quality of implementation was regularly assessed and further training was held within the team. Favorites for scheduling training in the electronic documentation system were further developed.

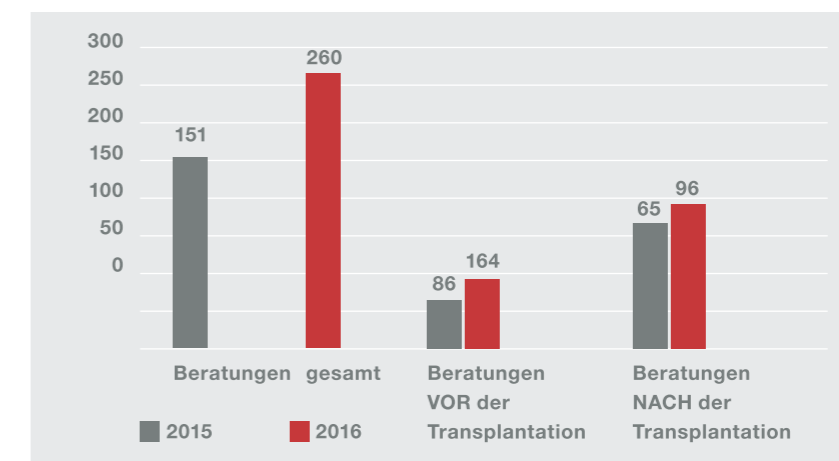
### Conference presentations

Schmid-Mohler, G., Odermatt, R. (June 16, 2016). Self-management: How can we support patients in doing home intravenous therapy?

Oral communication at the joint annual conference 2016 of the Swiss Society of Cardiology (SGK), Swiss Society of Cardiac and Vascular Thoracic Surgery (SGHC), Swiss Society of Pneumology (SGP), scientific session: Adherence after lung transplantation – enhancing patients’ self-care abilities, Lausanne, Switzerland.

transplantation. The consultations are delivered by a specialist APN in inpatient and outpatient settings. The objective is to offer the best possible support for patients and family members in preparing for life with a new organ and to strengthen self-reliance in relation to the disease.

Advisory services as part of the liver transplant nursing consultations



### Swiss transplant care network

Two network meetings were held in Bern in May and October. Nursing professionals from all Swiss transplantation centers attended, resulting in a lively exchange of views. Five nursing-specific educational lectures constituted part of these meetings.

### Transplant care CAS at Kaleidos University of Applied Sciences

The new CAS course in transplant care started at Kaleidos University of Applied Sciences in spring 2016. The course was developed over two years in collaboration with the Swiss transplant care network and Abdominal and Metabolic Surgery division. Four qualified nurses from the Ost E III transplant ward successfully completed modules in the new transplant care course.

## Liver transplant nursing consultations

The liver transplant nursing consultations offer patients and family members advisory services before and after

The content and approach of the consultations are adapted to the individual requirements of those affected. The focal points are

Before the transplant: symptom management, waiting list procedure, health (e.g. quitting smoking, maintaining nutrition levels and getting exercise), emotional handling of the situation

After the transplant: drug intake, prevention of infection, self-monitoring, rejection reactions, sun protection, health.

Despite having the same staff resources, the advisory services increased in 2016 compared with the previous year.

Alongside advice for patients and family members, the consultations focus on extending friendly, inter-professional collaboration within UHZ and beyond.



### *In UHZ*

Consultations and structured inpatient education during hospital stays after transplantation are planned and delivered in conjunction with the ward nursing teams. In 2016, there were four input sessions on the topics of liver transplantation and education for the ongoing internal professional development of the nursing teams.

### *Davos-Clavadel rehabilitation clinic*

The topics and foundations of the structured education after transplantation were introduced by the specialists involved when the consultations started. To refresh the content and introduce new staff members, a training day was held for colleagues at the Davos-Clavadel rehabilitation clinic in March.

### *St. Gallen Cantonal Hospital*

Patients who primarily receive pre- and post-transplant medical care at St. Gallen Cantonal Hospital also attend consultations with specialist APN nurses. Close collaboration enables a seamless transition between the institutions. Open questions from previous consultations can be handed over to the expert APN of the hospital in question. To date, a total of 33 patients have received care across hospitals. An initial descriptive analysis showed that the content and structure of the consultations varied mainly because of the current medical situation. These results underline the need for cross-hospital collaboration.

### *Hôpitaux Universitaires de Genève*

Start of cooperation with the Département de l'enfant et de l'adolescent to plan the transition between the two institutions after liver transplants among children and young adults.

### *Information brochures*

In addition to the consultations, patients and family members receive the following brochures: "Preparing for a liver transplant" and "Life after a liver transplant". The brochures also form the basis for the structured inpatient training. At the end of 2016, the brochure "Liver donation – key information for donors and recipients" was completed.

### *Accompanying research to evaluate liver transplant nursing consultations*

Patients on the waiting list and those with transplants were asked to assess the level of care in the case of chronic disease. The questionnaire on patient satisfaction with the medical care provided (PACIC-S11) was sent before and after the launch of the nursing consultations.

Regardless of the time before or after transplantation, the overall level of satisfaction with medical care improved in the questionnaire following the launch of the nursing consultations. The assessment led to improvements for the following points:

- Having treatment alternatives to choose from
- Setting specific goals for healthy living
- Seeking support from patient training / self-help groups
- Finding support for a day-to-day treatment plan
- Having support for a plan for difficult situations
- Asking how chronic disease influences day-to-day life
- Asking how people feel after a doctor's appointment

### *Presentations in 2016*

- Beckmann S, Künzler-Heule P, Biotti B, Spirig R. (May 30 & June 1, 2016). Mastering Together the Highs and Lows: Patients' and Caregivers' Perceptions of Self-Management in the Course of Liver Transplantation. Verbal presentation, Nursing Science Congress Groningen, Netherlands
- Beckmann S, Künzler-Heule P, Biotti B, Spirig R. (October 16, 2016). Mastering Together the Highs and Lows: Patients' and Caregivers' Perceptions of Self-Management in the Course of Liver Transplantation. Verbal presentation, 25th Annual ITNS Symposium, Pittsburgh, USA

### *Peer-reviewed publication*

- Beckmann S, Künzler-Heule P, Biotti B, Spirig R. Mastering together the highs and lows – Patients' and caregivers' perceptions of self-management in the course of liver transplantation. Progress in Transplantation 2016,1-9

### **Infectious disease**

*Prof. Dr. Nicolas Müller – Infectious disease*

Our service recorded 1,013 infectious disease consultations including follow-up consultations for patients in connection with transplantation in 2016. This corresponds to approximately one-fifth of all infectious disease consultations held at UHZ. It underlines the importance of infectious disease treatment and prevention in recipients of new organs or hematopoietic stem cells. In addition to this on-demand service, all new patients on the waiting list for kidney, pancreas or islet cells were routinely checked for serology and history of infections. Regular participation in weekly rounds for stem cell recipients and patients newly transplanted with kidney or pancreas ensures continuous care and close cooperation. The visits for liver transplant patients implemented since 2013 have become an important part of post-operative care. Optimal infectious disease management is also achieved through the regular revision of various guidelines.

### **Dermatological care**

*Günther Hofbauer and 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. more than 2,707 of these specialized consultations took place in 2016 under the coordination of Prof. Günther Hofbauer and Dr. Mirjam Nägeli (from June 1, 2016). The main focus is on prophylaxis, early detection and treatment of white skin carcinoma (spinocellular skin carcinoma), which is the most common malignant tumor resulting from long-term immunosuppression. Existing tumors are detected and removed as part of the pre-transplant assessment. At the same time, transplant patients are advised on the risk of white skin cancer and are taught prevention through appropriate behavior, clothing, application of sunscreen and early detection.

### **Information brochures**

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

### **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 greater risk. We thereby hope to identify patients with the greatest need at an early stage, and tackle this in a targeted manner. We are also taking part in a multi-center study that aims

to document the safety of local treatment with ingenol mebutate in transplant patients.

For the first time, we have welcomed a visiting physician from Singapore, who has selected Zurich for a year of advanced clinical and scientific training so that dermatological follow-up care can be provided for transplant patients in Singapore at a later date.

### **Collaboration in international committees**

In addition, we are working closely with transplant dermatologists through Skin Care in Organ Transplant Patients Europe (SCOPE) and the International Transplant Skin Cancer Collaborative (ITSCC) in the USA.

### **Psychosocial care**

*Prof. Dr. Josef Jenewein – Psychiatry*

### **General review**

Psychiatric and psychological care of transplant patients, donors and family members at UHZ is carried out by the advisory and liaison psychiatric services of the Department of Psychiatry and Psychotherapy (headed by Prof. Dr. Josef Jenewein).

The number of psychiatric/psychological evaluations and treatments of patients and donors was similar to the previous year, with a total of 1,600 consultations. A clear increase in evaluations and treatments was recorded in conjunction with liver transplantation.

### **Team organization**

The team continues to comprise three senior physicians with a specialist degree in psychiatry and psychotherapy (total FTE 1.8) and one specialist psychologist for psychotherapy (FTE 0.6).

### **Research**

In 2016, one project was submitted to and approved by the Swiss Transplant Cohort Study (STCS). This prospective study investigates quality of life (QOL) and psychological stress as well as potential predictors of QOL in patients three years after undergoing a lung transplant. Data collection was completed at the end of May 2017 and the data are expected to be published by the end of 2017.



## Individual transplant programs

### Allogenic stem cell transplantation

Urs Schanz – Department of Hematology

The number of allogenic transplants (56) was in line with the high level recorded for 2015 (n = 58). The main indication for allogenic stem cell transplantation was myeloid neoplasms at 60% (acute myeloid leukemia n=19, myelodysplastic syndrome and myeloproliferative neoplasms n=14) The cumulate transplant-related one-year mortality rate remained gratifyingly low at 5%.

The number of transplants with related (n=30, 2015 n=31) and unrelated donors (n=26, 2015 n=27) remained virtually unchanged compared to the previous year. A further increase in the reduced intensive conditioning regimens was recorded, rising from 62% last year to the current level of 70%.

Within the scope of “swisstolerance.ch”, a joint project involving the departments of Visceral and Transplant Surgery, Nephrology and Radio-oncology and University Children’s Hospital Zurich, the first allogenic stem cell transplantation following a related, HLA-identical kidney transplant was performed on a female patient. The aim is to establish mixed haematopoietic chimerism with the potential to cease immunosuppression fully during the course of treatment.

In January 2016, the stem cell transplantation program successfully renewed its accreditation in accordance with the Joint Accreditation Committee ISCT-EBMT (JACIE) for allogenic and autologous stem cell transplantation. This accreditation is valid until 2020.

Planning for the new 16-bed ward continued. Construction work started in 2015 with clear progress is now being made in the park.

### Autologous stem cell transplantation

Urs Schanz – Department of Hematology

The well-established and successful collaboration with Triemli Hospital in the field of autologous stem cell transplantation continued in 2016. Here, too, figures (n=94) remained stable in relation to the previous year (n=92). Multiple myeloma continues to be the main indication, followed by malignant lymphoma. A further focus is autologous transplantation of solid – primarily testicular – tumors (n=14).

For the first time in Zurich, a patient with systemic sclerosis was successfully treated with autologous stem cells. Meanwhile, for the first time in Switzerland, a patient with multiple sclerosis was successfully treated in the same manner in collaboration with Professor Roland Martin and his team from the Department of Neurology. This is becoming an increasingly established treatment method for multiple sclerosis on the international stage. We hope to become one of the leading centers for this indication. However, there are still issues to be resolved with regard to payment through health insurers. A submission has been made to the ELGK (Federal Commission for General Benefits and Principles) as of March 31, 2017.

### Heart transplantation

Prof. Markus Wilhelm – Cardiovascular Surgery and Prof. Dr. Frank Ruschitzka – Cardiology

Ten heart transplants were performed in 2016. This means that in the last three years, a total of 40 hearts have been transplanted in Zurich, with above-average results when compared internationally. Four of the 10 heart transplant patients in 2016 were supported via a heart support system prior to transplantation. Two of the 10 patients were children.

The implantation of heart support systems has increased significantly in recent years (Fig. 3), as these systems are currently being used both as a bypass method prior to

the heart transplant and as a lifelong treatment method for patients who are not eligible for a heart transplant. As in 2015, 15 patients with end-stage cardiac failure were treated with heart support systems (“ventricular assist devices”) in 2016. Thirteen patients received a left-ventricular support system (Fig. 2) and two patients were given a bi-ventricular heart support system (Fig. 1). Ten high risk cases, or 67%, were changed from extracorporeal membrane oxygenation (ECMO) to a heart support system.

The number of implantations from ECMO and extracorporeal life support (ECLS), which is used for refractory acute respiratory or cardiac failure, once again narrowly exceeded the record level of 117 implantations in 2015, with 119 in 2016. A total of 82% of the implantations were carried out as ECLS in cardiogenic shock. The transfer of patients with ECMO/ECLS also increased sharply again in comparison with the previous year. A total of 25 patients were given ECMO/ECLS in external hospitals and subsequently transferred to ECMO/ECLS at UHZ, 47% more than the previous year.

Dr. Rodriguez from the Department of Cardiac and Vascular Surgery received the Swiss Transplantation Society prize for his experimental work on the immunoregulatory mechanisms of NAD+.

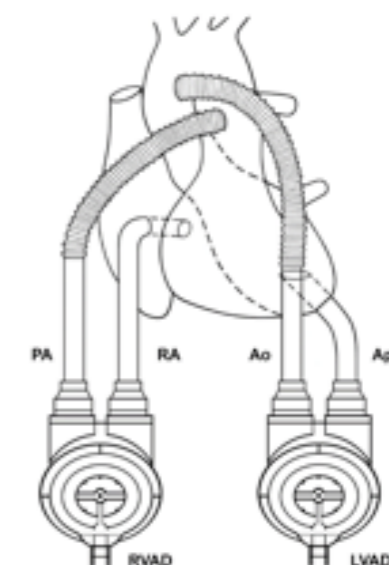


Fig. 1: Bi-ventricular heart support system (Berlin Heart EXCOR®)



Fig. 2: Left-ventricular support system (HeartWare®)

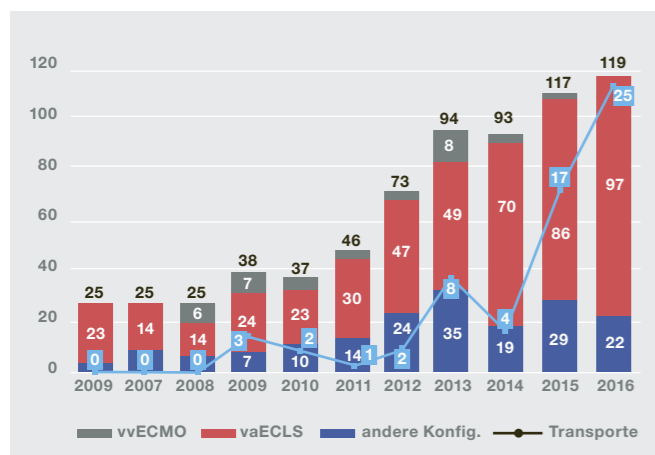


Fig. 3: Number of ECMO implantations since 2006

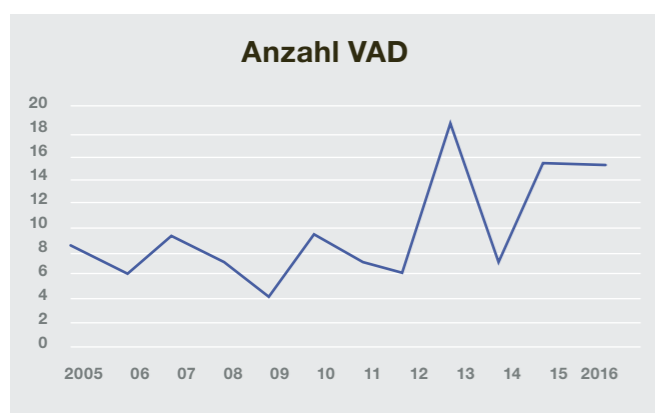


Fig. 4: Implantations of heart support systems (VAD) since 2005

### Lung transplantation

PD Dr. Sven Hillinger – Thoracic Surgery and  
PD Dr. Macé Schuurmans – Pneumology

In the 2016 reporting year, we performed 26 bilateral sequential transplantations. Since the start of the program, of a total of 494 transplantations using the lungs of 473 DBD and 21 DCD donors were used. Since 2013, 12 donor lungs have been connected for evaluation through the ex-vivo lung perfusion (EVLP) system, of which six were successfully transplanted.

At the TNT seminar on October 31, 2016, Prof. Dr. Annette Boehler gave a talk titled 'Benchmarking in the Swiss Transplant Cohort Study: Where do we stand?'

The Transplantation Center fall symposium was held in November 2016 under the title of 'The current challenges of transplantation in Zurich and abroad'. Chris Benden and Prof. John Dark (Newcastle) reported on the current challenges in the field of lung transplantation. At the fall symposium, Professor Rudolf Speich was recognized posthumously for his work (lifetime achievement award). He was a pioneer in the early days of transplant pneumology in Zurich and died unexpectedly on February 1, 2016.

Prof. Dr. Wolfgang Jungraithmayr was appointed as assistant professor for experimental lung transplantation in February 2016. As part of his intensive scientific work, he, together with his colleagues Yoshito Yamada and Tatsuo Maeyashiki, held a microsurgery course on the topic of mouse lung transplantation that attracted an international audience in September 2016. The thesis of his Master student M. Niedzwiecki, titled 'Decrease of airway allergies after lung transplantation is associated with reduced basophils and eosinophils', was published in Transplantation Proceedings and received the University of Zurich semester prize.

The transplant pneumology team had to bid farewell to its excellent medical collaborator PD Dr. Lars C. Huber, as he was appointed as Director and Chief Physician of the Department of Internal Medicine at Triemli Hospital. In his place, Dr. Cecile Robinson joined the transplant pneumology team as attending physician iV.

During the reporting year, 22 patients were assessed as inpatients and their cases discussed by an interdisciplinary panel regarding whether or not to be listed for a lung transplant. Research resulted in various publications and were presented at national and international meetings (ISHLT Registry, SysCLAD study, collaboration with Leuven). PD Dr. C. Benden worked on the development and evaluation of the international ISHLT registry data and collaborated on consensus guidelines on the prophylaxis of fungal infections in lung transplant patients. Further results were published from the prospective international multicenter study titled 'SysCLAD – systems prediction of chronic lung allograft dysfunction', which focused in particular on airway microbiota. Other publications included

an analysis of gastrointestinal complications and respiratory infections in lung transplant patients, as well as the results of pediatric transplant recipients.

Clinical and experimental research performed by the Department of Thoracic Surgery and Department of Pneumology led to 33 primarily international publications and numerous scientific meeting presentations in 2016.

### Liver transplantation

Prof. Dr. Philipp Dutkowski – Visceral Surgery and  
Prof. Dr. Beat Müllhaupt – Gastroenterology

In 2016, 52 liver transplants (48% of the 108 performed in Switzerland) were done in Zurich. The number of living donor liver transplants also increased significantly due to the strong commitment of all involved (n=8). Additionally, more than 50 ex vivo liver perfusions (Hypothermic Oxygenated PERfusion, HOPE) have been successfully performed in Zurich since 2012. This is the only optimization strategy for marginal organs prior to liver transplantation of its kind worldwide. These results were presented at ILTS 2017 in Prague.

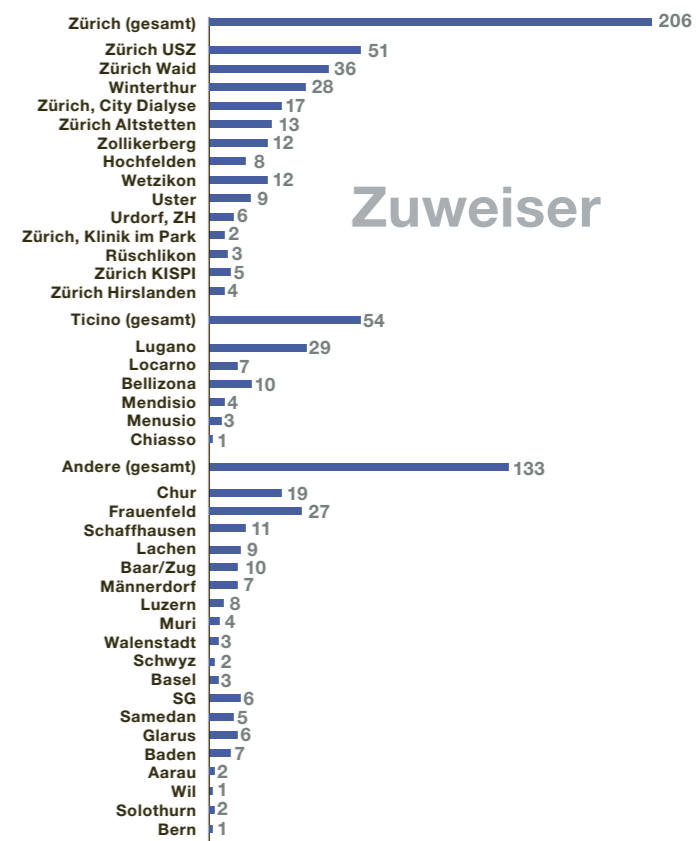
### Kidney transplantation

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

A total of 88 kidneys were transplanted at University Hospital Zurich in 2016, or 40% of all kidneys from deceased donors transplanted in Switzerland. Although the donor figures unfortunately dropped significantly across Switzerland in 2016, we maintained the frequency of transplants due to a high level of personal commitment.

In total, 22 living kidney transplants were performed. We are pleased to report that no complications of donors were recorded (need for rehospitalization or further operations). In 2016, we held our biennial barbecue for donors, recipients and family members, which once again received an excellent and positive response. For patients on the waiting list, we held two information evenings at

UHZ and one in Ticino last year. The events were each attended by around 100 participants and proved to be an effective platform for sharing experiences. Information evenings for patients were also organized in 2017. We can look back on a successful collaboration with the referring nephrologists: their professional experience, mutual respect, acceptance and confidence have enabled them to make a decisive contribution to positive developments. The monthly exchange of status sheets detailing the cases of patients on the waiting list ensures continuous follow-up monitoring. The aim is to inform these patients as to why various offers were rejected. In addition, we have established a special consultation service for patients who have already been waiting for an organ for a long time. This enables us to explain to those involved the different, often immunological reasons for the long waiting times.



## Pancreas transplantation

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

A total of four combined pancreas/kidney transplantations were performed in 2016. These figures also reflect the general international trend. With aging donors showing signs of comorbidity, this means that increasingly fewer pancreases are allocated. Nevertheless, high surgical standards were maintained, and the four recipients were discharged for follow-up care with functioning double organs (insulin-free).

## Islet cell transplantation

Prof. Dr. Roger Lehmann – Endocrinology and Diabetology

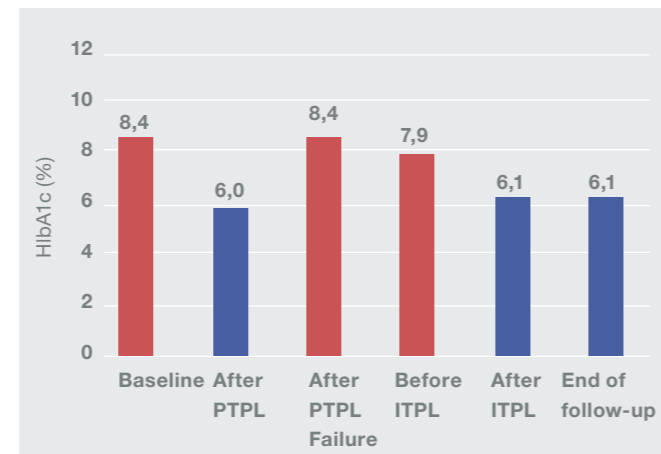
### Islet cell transplantation 2016

In 2016, six islet cell transplants were performed using two new types of transplantation. At UHZ, the first combined islet cell-kidney transplantation from a non-heart-beating donor (NHBD) was carried out, as was the first simultaneous islet cell-liver transplantation.

Meanwhile, the global objective for islet cell transplantation changed from insulin independence to good HbA1c control (< 7.0%) and the prevention of severe hypoglycemia. This objective has been pursued at UHZ since 2008. It can be met in 80-90% of all patients who have undergone an islet transplantation, even if low doses of insulin have to be injected. Good glycemic control is also of great importance with regard to the functioning of a simultaneously transplanted kidney: our own data (R. Lehmann et al., Diabetes Care 2015, 38:752-59) showed that during long-term follow-up over 13 years, only a minor decline in kidney function after combined transplantation was observed ( $\Delta$ GFR: -1.1 to 1.3 ml/min per year). Furthermore, there was no difference between islet and pancreas transplantation – in contrast to a kidney transplant alone in patients with type 1 diabetes, in which kidney function declines far more rapidly in long-term follow-up monitoring ( $\Delta$ GFR: -2.5 ml/min per year) due to persistent hyperglycemia.

### Evaluation of islet cell transplantation results after loss of function following a pancreas transplant

To date, 10 patients with type 1 diabetes have undergone an islet cell transplant after losing a pancreas transplant. The objective of the study, namely HbA1c < 7.0% and no severe hypoglycemia, was achieved in 9 out of 10 patients. This was not achieved for any patient in the control group that did not receive islet transplantation. Insulin requirements fell by 50% and HbA1c at the end of the follow-up period was comparable to HbA1c following the pancreas transplant (see diagram). In this group, e-GFR only dropped by 1 ml/min per year.



### Diabetes care

Interdisciplinary collaboration between the three departments of Visceral Surgery and Transplant Surgery, Nephrology and Endocrinology at the Transplantation Center focusing on care of islet or pancreas and kidney transplants works extremely well.

Patients are discussed and evaluated jointly before being listed for transplantation.

In 2016, St. Gallen Cantonal Hospital was also integrated into the treatment concept, and follow-up examinations were carried out jointly. The latest technology is also used in the treatment, with continuous blood sugar measurements and a sensor-equipped pump that enables the hypoglycemia rate to be further reduced due to the insulin

pump's predictive hypo-stoppage coupled with a glucose sensor (Minimed 640G).

### Key aspects of the islet cell transplantation program in the coming years

#### a) New rules on pancreas allocation

From mid-2017 to early 2018, the FOPF will revise the allocation rules for pancreas and islet cell transplantation. There will be a shared waiting list for beta cell replacement. This is a major improvement on the current situation. We will probably be able to assess the effects of this change on the number and results of islet cell transplants as early as 2018.

#### b) Autotransplantation of islets

To increase the volume of islet transplantation, more and more presentations and information events will be organized at different hospitals that indicate the possibility of islet autotransplantation following pancreatectomy due to chronic pancreatitis or trauma (pancreas rupture).

#### c) Greater use of NHBD in islet transplantation

#### d) Participation in an international project on bioartificial pancreases

Collaboration with PD Dr. Barbara Armann and Prof. Dr. St. Bornstein, University of Dresden at the German Transregional Collaborative Research Centre 127, biology of xenogeneic cell, tissue and organ transplantation: from bench to bedside.

#### e) Production and characterization of pseudo-islets

using our patented plates (12-well 5 D spherical plate, Kugelmeiers) and functional tests (perfusion, oxygen consumption, mitochondrial function), and preparation of a pilot study to compare the transplantation of native islet cells with that of pseudo-islets.

### Reconstructive transplantation

PD Dr. Jan Plock, Plastic Surgery and Hand Surgery

The administrative basis for interdisciplinary evaluation of patients with regard to reconstructive transplantation was established at University Hospital Zurich in 2015. The

medical requirements were specified and a manual was developed. Based on current international outcome data with a long-term course of more than 15 years after the first successful hand transplant and 10 years after the first face transplant, there is sufficient evidence to justify bilateral hand/arm transplantation and face transplantation from an ethical and medical point of view. Since both are non-vital transplantations, the reduction of immunosuppression and minimization drug side effects remains an important objective.

International collaboration continued to be pursued on experimental studies aiming to extend ischemic times through extracorporeal machine perfusion and to reduce drug-related immunosuppression with stem cell-based immunomodulation.

As part of the TNT seminar, Prof. Katrina Bramstedt, an invited guest lecturer, spoke to a well-attended meeting about current ethical aspects of face transplantation, discussing both donor ethics and financing of reconstructive transplantations.

The university and University Hospital Zurich started the recruitment process to hire an assistant professor in reconstructive transplantation.

Clarification of cost issues and the attainment of permission from the FOPH is now pending in 2016.

## Appendix

### The Transplantation Center 2016

Area	Directorate	Board of Trustees
	<b>Head</b> Prof. Nicolas Müller	<b>Chairman</b> Prof. Pierre-Alain Clavien
<b>Heart</b>	Prof. Frank Ruschitzka Prof. Markus Wilhelm	Prof. Thomas Lüscher Prof. F. Maisano
<b>Lung</b>	PD Dr. Macé Schuurmans PD Dr. Sven Hillinger	PD Dr. Christian Benden Prof. Walter Weder
<b>Liver</b>	PD Dr. Thomas Kuntzen Prof. Philipp Dutkowski	Prof. Beat Müllhaupt Prof. Pierre-Alain Clavien
<b>Kidney</b>	Prof. Thomas Müller Dr. Olivier de Rougemont	Prof. Rudolf Wüthrich Prof. Pierre-Alain Clavien
<b>Pancreas and islet cells</b>	Prof. Roger Lehmann	Prof. Giatgen Spinaz Prof. Pierre-Alain Clavien
<b>Small bowel and multi-visceral transplantation</b>	PD Dr. Christoph Gubler/ vakant	Prof. Pierre-Alain Clavien
<b>Stem cells</b>	PD Dr. Urs Schanz PD Dr. Panagiotis Samaras/vakant	Prof. Markus Manz
<b>Reconstructive transplantations</b>	PD Dr. med. Jan Plock	
<b>Palliative care</b>	Prof. Nicolas Müller, Infektiologie Prof. Günther Hofbauer, Dermatologie Prof. Josef Jenewein, Psychiatrie	PD Dr. Urs Schwarz
<b>Anesthesiology</b>	Prof. Marco Zalunardo	Prof. Donat Spahn
<b>Care</b>	Béatrice Biotti	Prof. Rebecca Spirig
<b>Intensive care</b>	Dr. Peter Steiger	
<b>Transplant coordination</b>	Werner Naumer	
<b>Research</b>	Prof. Rolf Graf	
<b>Data and quality</b>	Uschi Schäfer	
<b>Department manager</b>	Marion Derhaschnig	
<b>Dean</b>		Prof. Dr. Rainer Weber

International Advisory Board	
<b>Heart</b>	Prof. Mandeep R. Mehra, USA
<b>Lung</b>	Prof. John Dark, UK
<b>Liver</b>	Prof. Xavier Rogiers, Belgien
<b>Kidney</b>	Prof. Prof. Christophe Legendre, Frankreich
<b>Pancreas and islet cells</b>	Prof. Eelco de Koning, Niederlande
<b>Stem cells</b>	Prof. Ernst Holler, Deutschland
<b>Anesthesiology and intensive</b>	Univ. Prof. Michael Hiesmayr, Österreich

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



## Transplant activities 2009 – 2016

Organ	2009	2010	2011	2012	2013	2014	2015	2016
<b>Heart total</b>	<b>9</b>	<b>12</b>	<b>14</b>	<b>11</b>	<b>10</b>	<b>16</b>	<b>14</b>	<b>10</b>
Heart and kidney	0	0	0	0	1	1	0	0
<b>Lung total</b>	<b>26</b>	<b>26</b>	<b>30</b>	<b>33</b>	<b>28</b>	<b>32</b>	<b>31</b>	<b>23</b>
– of which DCD	0	0	0	2	5	5	5	3
<b>Liver total</b>	<b>50</b>	<b>45</b>	<b>47</b>	<b>43</b>	<b>41</b>	<b>43</b>	<b>59</b>	<b>52</b>
NBHD single-liver	44	41	39	39	27	28	44	34
– of which DCD	0	0	1	3	9	12	12	6
Living donor liver	4	2	7	4	2	2	2	7
Liver and kidney	2	2	1	0	2	1	1	4
Liver and small intestine	0	0	0	0	1	0	0	1
<b>Kidney total</b>	<b>85</b>	<b>88</b>	<b>100</b>	<b>84</b>	<b>87</b>	<b>84</b>	<b>96</b>	<b>88</b>
NBHD single-kidney	47	44	57	47	47	44	62	48
– of which DCD	0	0	6	9	6	11	6	9
Living donor kidney	29	30	32	22	22	22	23	22
Kidney and pancreas	7	9	9	10	11	5	3	4
Kidney and islet cells	0	3	1	1	1	1	1	1
Kidney and heart	0	0	0	0	1	0	0	0
Kidney and liver	2	2	1	0	2	1	1	4
<b>Pancreas total</b>	<b>7</b>	<b>9</b>	<b>11</b>	<b>12</b>	<b>15</b>	<b>7</b>	<b>3</b>	<b>4</b>
Pancreas only	0	0	1	2	3	2	0	0
Pancreas and kidney	7	9	9	10	1	5	3	4
Pancreas / small intestine	0	0	1	0	1	0	0	0
<b>Islets total</b>	<b>5</b>	<b>9</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>6</b>	<b>3</b>	<b>6</b>
Islet cells only	5	6	5	4	4	5	2	4
Islet cells and kidney	0	3	1	1	1	1	1	1
<b>Small</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Stem cells total</b>	<b>–</b>	<b>119</b>	<b>147</b>	<b>128</b>	<b>139</b>	<b>151</b>	<b>150</b>	<b>150</b>
– autologous	not in TPLZ	65	95	77	92	98	92	94
– allogenic	34	54	52	51	47	53	58	56
<b>Multi-organ donations UHZ</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>Donors from UHZ</b>	<b>2</b>	<b>7</b>	<b>5</b>	<b>12</b>	<b>18</b>	<b>17</b>	<b>24</b>	<b>14</b>
– of which DCD	0	0	3	6	9	12	12	4
<b>Donors from ZH network</b>	<b>10</b>	<b>3</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>9</b>	<b>10</b>	<b>13</b>
<b>Total donors UHZ plus network</b>	<b>12</b>	<b>10</b>	<b>12</b>	<b>19</b>	<b>24</b>	<b>26</b>	<b>34</b>	<b>27</b>

## Outcome of organ transplantations

The results have been published nationwide for all centers since 2013. This is in accordance with the Transplantation Act and ordinance. The report is publicly available at [www.stcs.ch](http://www.stcs.ch).

## International Advisory Board (IAB) Meeting 2016

Nicolas Müller – Head of Transplantation Center

## Minutes of the International Advisory Board Meeting 2016

Friday, November 17, 2016, 10 a.m. – 12 p.m.  
Im Turm (Restaurant), Zurich

Present (on behalf of IAB): Prof. J. Dark, Prof. E. de Koning, Prof. E. Holler, Prof. C. Legendre, Prof. M.R. Mehra

Excused: Univ. Prof. M. Hiesmayr, Prof. X. Rogiers

Present (on behalf of Board of Trustees:

PD Dr. C. Benden, Prof. P.A. Clavien, Prof. I. Inci (for Prof. W. Weder), Prof. R. Lehmann (for Prof. G. Spinas), Prof. T. Müller (for Prof. R. Wüthrich), Prof. B. Müllhaupt, Prof. F. Ruschitzka (for Prof. T. Lüscher), PD Dr. R. Schüpbach (for Dr. P. Steiger)

Excused: M. Derhaschnig, Prof. F. Maisano, PD Dr. U. Schwarz, Prof. R. Stupp, Prof. R. Weber

On behalf of the Board of Trustees, N. Müller welcomes the new members of the International Advisory Board. He provides an outline of the transplantation landscape in Switzerland. N. Müller presents the Annual Report 2015, which has been issued to all members. At the same time, Donor Development 2015 and 2016 are discussed. The various programs are then briefly presented by the respective representatives, with comments from IAB members. The subsequent debate focuses on the newly launched benchmarking project, with various members sharing their views and experience. Lunch is served after the meeting.

*Minutes*

*N. Müller*

## Scientific publications 2016

1. Bader P, Giudici L and Benden C. [CME: Lymphoproliferative diseases after transplantation (PTLD)]. Praxis (Bern 1994). 2016; 105(3):123-128; quiz 129-130.

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## Transplantation awards 2016

In November 2016, the Zurich Transplantation Center awards were held during the fall symposium for the sixth time. The awards were once again generously sponsored by Astellas Pharma and were presented by Prof. Wilhelm and PD Dr. Schuurmans, members of the Board of Directors' Awards Committee.



**Experimental scientific award:**  
**Dr. med. Philipp Kron, MD**  
**Short, Cool and Well Oxygenated – HOPE for Kidney Transplantation in a Rodent Model**



**Clinical scientific award:**  
**Dr. med. Andrea Schlegel, MD**  
**Risk Assessment in High and Low MELD Liver Transplantation**



**Merit award:**  
**Dr. med. Kerstin Hübel**



**Lifetime achievement award:**  
 posthumously to Prof. Dr. Dr.h.c. Rudolf Speich  
**For outstanding services as a pioneer of lung transplantation in Zurich**

## Ongoing professional development 2016

### Fall symposium 2016 "The current challenges of transplantation in Zurich and abroad"

10<sup>th</sup> Annual Symposium of the Transplant Center

**The current challenges of transplantation – in Zurich and abroad**

Friday, November 18<sup>th</sup>, 2016  
 12.15 – 18.15 h  
 Great Lecture Hall East  
 UniversityHospital Zurich

Program	
12.15h	Buffet Lunch (Dick & Davy)
13.15h	<b>Welcome (University of Zurich)</b> Rainer Weber
13.20h	<b>Welcome (UniversityHospital of Zurich)</b> Gregor Zünd
13.25h	<b>Transplant Center Zurich: Annual Report</b> Nicolas Mueller
	<b>Part 1 – Chair: Pierre-Alain Clavien</b>
	<b>Kidney</b>
14.00h	Olivier de Rougemont/Thomas Müller
14.10h	Christoph Legendre
	<b>Pancreas/Islets</b>
14.40h	Roger Lehmann
14.50h	Eelco De Koning
15.20h	Coffee break (Dick & Davy)
15.50h	<b>Awards Transplant Center Zurich</b> Markus Wilhelm
	<b>Part 2 – Chair: Ilhan Inci</b>
	<b>Lung</b>
16.10h	Christian Benden
16.20h	John Dark
	<b>Stem cells</b>
16.50h	Urs Schanz
17.00h	Ernst Holler
	<b>Heart</b>
17.30h	Frank Ruschitzka/Markus Wilhelm
17.40h	Mandeep R. Mehra
18.10h	<b>Closing remarks</b> Nicolas Mueller
18.15h	Apéro (Dick & Davy)



Annual Program

## TNT – Hot Topics in Transplantation

5.15–6.00 pm, kleiner Hörsaal OST, HOER B5

- 29.02.2016** **Tolerance in kidney transplantation: Where do we stand in Zurich?**  
 Prof. Dr. med. Thomas Fehr, Ärztlicher Direktor, Chefarzt und Departementsleiter Innere Medizin, Kantonsspital Graubünden  
 Dr. Pietro Cippà, Oberarzt, Klinik für Nephrologie, USZ  
 Host: N. Müller
- 21.03.2016** **Gesichts- und Handtransplantation – Wo stehen wir aktuell in Zürich?**  
 PD Dr. med. Jan Plock, Leitender Arzt, Klinik für Plastische Chirurgie und Handchirurgie, USZ  
 Host: N. Müller
- 25.04.2016** **Donor-specific antibodies (DSA) in non-kidney transplantation**  
 Prof. Dr. med. Jean Villard, Head of Clinical Immunology and Transplant Immunology, Geneva University Hospital  
 Host: U. Schanz
- 30.05.2016** **Clinical challenges of extended-release tacrolimus based therapies**  
 Prof. Lluís Guirado, MD PhD, Unidad de Trasplante Renal, Servicio de Nefrología, Fundación Puigvert, Barcelona, Spain  
 Host: T. Müller/N. Müller
- 29.08.2016** **European Homograft Bank – organisational, ethical and financial aspects**  
 Dr. Ramadan Jashari, Medical Director, European Homograft Bank, Brussels  
 Host: C. Schuppisser
- 26.09.2016** **Pancreas/islets: The new Swiss allocation rules**  
 Prof. Dr. med. Roger Lehmann  
 Leitender Arzt und Leiter Diabetologie, Stv. Leiter Transplantationszentrum, Leiter Inseltransplantationsprogramm, Klinik für Endokrinologie, Diabetologie und Klinische Ernährung, USZ  
 Host: N. Müller
- 17.10.2016** **Future Directions in Vascularized Composite Allotransplantation**  
 Yur-Ren Kuo, MD, PhD, FACS, Professor and Chief, Division of Plastic Surgery, Vice Chairmen, Department of Surgery, Kaohsiung Medical University Hospital  
 Adjunct Professor, Department Biological Sciences, National Sun Yat-sen University, Taiwan
- 31.10.2016** **Benchmarking in the Swiss Transplant Cohort Study: Where do we stand?**  
 Prof. Dr. med. Annette Boehler, Coordinator, STCS Benchmarking project, Universitätsspital Basel  
 Host: N. Müller
- 28.11.2016** **Long-term care after transplantation**  
 Osteoporosebehandlung nach Organtransplantation  
 Dr. med. Marco Bonani, Oberarzt, Klinik für Nephrologie, USZ

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

**Für die einzelnen Veranstaltungen werden Credits vergeben.**

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