



Annual Report

**Transplant Centre
University Hospital
Zurich**

2014

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1. The Transplant Centre in its 7th year

Nicolas Müller – Head of the transplant center

2014 was dedicated to our 50 years anniversary. On December 17, 1964, the first transplantation of a kidney was conducted at the USZ, after the modern age of transplantation had been heralded in 1954 with the first successful organ transplantation ever in Boston by Joseph Murray. The manifold activities which took place during our anniversary year have demonstrated in an impressive way the innovative impact of transplantation on the medical progress in many areas.

1.1. Retrospect

The past year has been rich in highlights which have been organized on the occasion of the 50 years anniversary. Centre of attention was the symposium “50 Years of Transplantation in Zurich” on November 21, 2014. Prof. Felix Gutzwiller, our current Council of States, and Mrs Trix Heberlein, former National Council and Council of States, graced us with their presence. Both of them are closely associated with the subject of transplantation in Switzerland and in Zurich. Mrs Heberlein as former foundation president of Swisstransplant, led through part of the program. Mr Gutzwiller spoke on the topic of the role of politics in transplantation. Two key institutions, Swisstransplant and Swiss Stem cells, were represented by their directors Franz Immer and Grazia Nicoloso, respectively. The early stages and the future of transplantation were illustrated in a brilliant way by Prof. Weder, Prof. Clavien, Prof. Ruschitzka and PD Dr. Wilhelm for the respective organs. The reading by Michael Pfister from the book ‘Life’ of David Wagner, in which Mr Wagner describes his own experience with liver transplantation, was perceived as one of the highlights of the event by many participants. It is a very personal, reflective, sometimes rather dry and sometimes even witty description from a patient’s viewpoint.

As head of the Centre I had the great pleasure to honour two outstanding individuals and pioneers, outstanding individuals as humans and physicians, with the ‘Lifetime Achievement Award’ awarded for the first time at our symposium. Prof. Largiadèr and Prof. Binswanger have both build up the kidney transplant program from scratch and have started the area of transplantation in Zurich.



Prof. Largiadèr, Prof. Binswanger, Prof. Müller (from right to left)

Starting event for all activities organized on the occasion of the 50 years anniversary was a press conference held on November 10, 2014, which received a vivid echo in many media. Transplantation is definitely a subject of interest! Jointly with the department of communication of the USZ, under the auspices of C. Jörg and in collaboration with the entire USZ transplantation family the website www.50jahretransplantation.usz.ch was created which next to a historical axis also provides a multimedia-based presentation of the process of transplantation.

Beyond the actual anniversary, this website is also intended to provide a deepened insight into the subject

of transplantation to interested non-professionals.

The large range of jubilee activities was completed by several patient events.

As sign of appreciation for all coworkers engaged in transplantation the Transplant Centre invited everyone to a most entertaining event in the Conelli Circus thanks to the extremely generous support of the hospital management. The evening organized jointly with chair4medicine was a complete success!

Transplant activities

Transplant activities of all programs could be maintained on a good level in 2014. The exact numbers of the individual programs are specified in attachment 6.2 of this report.

The following milestones are mentioned specifically:

- The DCD program which has been resumed in 2011 has led to transplantation of 11 kidneys, 12 livers and 5 lungs of DCD donors by end of 2014. The livers and lungs have all been transplanted locally, while in the case of kidney transplantation the allocation takes place nationally since last year.. A national allocation is also under consideration for the liver program, but here extensive infrastructural preparations are required, however. In particular a correct *ex vivo* perfusion techniques has to be ensured.
- The first meeting with the local advisory board after the split-up has provided valuable impulses for a closer cooperation between our referring specialists and the USZ.
- The outcome data published on www.stcs.ch under the heading Publications as Annual Report 2014 have been released nationwide for the 2nd time. The Zurich Centre has already met this obligation of publication stipulated by law and the bylaws of transplant medicine in its quality reports in the recent years.
- New members of the board of trustees are: Prof. Maisano replacing Prof. Falk (appointment to Charité, Berlin), as well as Prof. Stupp replacing Prof. Renner.
- In the board of directors O. de Rougemont has been confirmed as representative of the surgical kidney program. R. Lehmann has been appointed new vice director by the board of directors and confirmed by the board of trustees.

Structural issues, inspection Swissmedic (FOPH)

The Transplant Centre has proved extraordinarily successful as organizational unit and has become an indispensable part of the USZ transplant landscape. Expression of this fact, among others, is the successfully conducted inspection by Swissmedic in 2014 mandated by the Federal Office of Public Health in the scope of the periodic renewal of authorizations according to law and bylaws of transplant medicine. The extensive preparatory work as well as the meticulous planning of the inspection are to be credited to Uschi Schäfer, our quality manager. It has become evident that in today's environment with the strong quality requirements such an inspections can only be passed successfully with help of motivated and professional collaborators.

The increased duties of the Transplant Centre are only partly depicted in the current structure. A discussion on the adaption of the current structure will be necessary.

Continuing education

The TNT Seminar has again been able to offer an exciting programme. The programme and the highlights are specified under point 6.7.2.

1.2. Outlook

Projects in 2015

Of all currently planned projects in 2015 only three are briefly mentioned:

Benchmarking: The obligation of publication of the results after transplantation is stipulated by the law and bylaws of transplant medicine. Up to the present there was only communication of a raw data, and although they are excellent by international comparison, a risk-adjusted analysis has been missing to-date. This difficult task is now being faced by a national working group which will elaborate a concept under the direction of Annette Böhler. From the USZ every program will be participating.

Newsletter: An overall concern is an improved communication in particular with referring physicians. What we have in mind is a simple newsletter which would communicate at irregular intervals important innovations and update contact information from the Transplant Centre. It should be short and restrict itself to the essential, but at the same time represent a true means of help for the practitioner.

Structure of the centre: The centre has grown in the course of the recent years and along with the new tasks also the demands to the quality management have increased. A reassessment of the structure and the by-laws in order to provide an improved depiction of the reality is envisaged.

2. Centre specific and integrative functions

2.1. Transplant coordination

Werner Naumer – Head transplantation coordination

2014:

Coordination hours: 1250 hours

Operations: 123

Foreign offers in total: 102

Thereof the subsequent organs were imported from abroad:

Hearts: 2; lungs: 6; livers: 7

Coordinated organs: 188

The coordination of an organ donor is a huge effort from a logistic point of view within a time period of 24 – 30 hours.

In 2014 the following donor evaluations have been made by the transplant coordination:

Abklärungen 2014 durch TPL-Koordinatoren		
Abklärung Lebertransplantationen durch TPL Koordination		64
Abklärung Lebertransplantationen durch Ass Arzt Station	12	
Lebendleberspende Stage 1		11
Lebendleberspende Stage 2		6
Lebendnierenspende		39
Total Abklärungen durch Transplantationskoordination		120
Aufnahme Warteliste 2014 durch TPL-Koordinatoren		
Herz		12
Herz + Niere		0
Lunge		23
Leber		40
Dünndarm		0
Pankreas + Niere		5
Pankreas singel		1
Inselzellen		4
Inselzellen + Nieren		1
Leber + Niere		1
Niere		89
Total		176

In June 2014 two new team members were be hired who had to be trained in coordination during six months.

On this occasion the kidney-, pancreas- and islet cell programmes was split among the two new colleagues since the volume has almost doubled in the course of the recent years. This has enabled a more intensive contact with the external nephrologists, which is highly appreciated. At the same time also the quality can be improved in order to conduct the necessary follow-up in all recipients, who usually have waiting times of several years after listing.

2.2. Interdisciplinary HLA typing laboratory

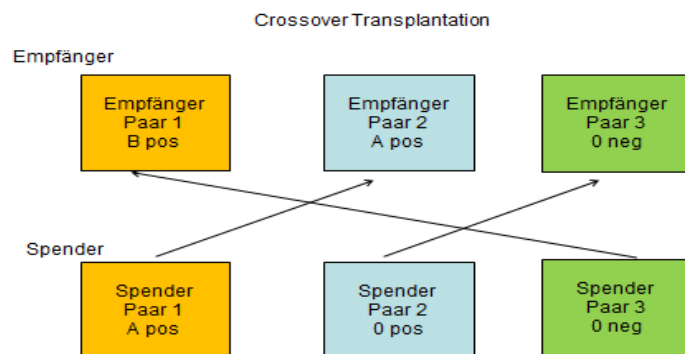
Barbara Rüsi – Head interdisciplinary HLA typing laboratory

2.2.1. Staff

Since November 1, 2012 the HLA typing laboratory offers a traineeship for biomedical analysts in training. Mrs Halala Moradi, the first student who has been educated in transplant immunology at the USZ, has successfully completed the training in summer 2014.

2.2.2. Kidney transplantation: Kidney paired donation

The majority of living donations is conducted between related persons (directed donation). The law of transplantation also allows a living donation to no-related persons, however. In this case we speak of a living non-directed organ donation. Therefore also the so-called crossover donation is possible, where two donor-recipient pairs, in whom a tissue or blood group incompatibility is present, respectively, exchange the respective organ among one another so that a more appropriate organ is available to the recipient.



The HLA typing laboratory of the USZ is looking for possible crossover constellations for all TPL centres in Switzerland. Since there is no IT supported national kidney paired donation program as yet, the combinations have to be selected "by hand".

Up to the present six crossover transplantations have been conducted at the USZ, whereof four triple-crossovers – one in collaboration with the University Hospital Geneva. In February 2014 a triple-crossover transplantation has been performed at the USZ alone. This was the first time in Switzerland when a triple TPL was conducted in one single centre.

2.3. Research in the Transplant Centre

Rolf Graf – research representative

Kidney transplantation

It is still a great problem to estimate the compliance of patients taking of immune suppressive drugs and to identify those who do not take the drugs on a regular basis. On the basis of data collections from the Swiss Transplant Cohort Study one parameter, based on day drowsiness, could be validated. By means of another method, an enterally administered medication sensor, it was also tested whether patients take the medicaments according to prescription. The test persons in this study showed a high adherence, although in some studies the test had to be interrupted due to side effects.

In a study on tolerance induction by CD40 blocking experimental animal trials have been presented. The tolerability of this method could be demonstrated in vivo as well as in vitro. In particular a protection of the renal tubular epithelium became evident, which renders this therapy option attractive.

Liver transplantation

To increase the liver donor pool, also marginal organs are evaluated more and more frequently. In order to improve these, studies in rats were performed which demonstrated that by using cold oxygenated perfusion (HOPE) prior to implantation a significant improvement could be achieved. Also well-known long-term injuries of the bile ducts could be minimized. HOPE was also clinically tested in livers of patients after cardiac death. Also in this case an improvement of the donor organ was observed.

In experimental basic research in addition reliable protocols on the evaluation of the liver volume and vascular anatomy in mice could be elaborated. By means of small animal MRI the liver volume before and after resection can be assessed.

Heart transplantation

In a large multicentre study in patients on the waiting list for heart transplantation it has been investigated whether a prophylactic implantation of a cardioconverter defibrillator can reduce sudden death. After a statistical analysis it becomes evident that this measure promises an improved survival in secondary as well as in primary implantation.

In order to check the ventricular assist devices (VAD) before implantation a new function test has been established which simulates by means of computer models blood flow, pressure and volume using a hydraulic simulator. The findings are validated by experimental methods.

Lung transplantation

In the field of basic research experiments in mouse- and pig models have been conducted. Ischemia- and reperfusion injuries could be significantly reduced through the elimination of macrophages in a lung transplantation model. In addition the postoperative course could be improved by reducing the dendritic cells of donors by expansion of the natural killer cells. Reduction of the tissue injury with aspiration liquid from the stomach is another strategy to prepare marginal organs for transplantation. In an experimental pig model surfactant lavage was used with the result that the recipients showed improved lung- and blood values after transplantation. In the same model donor lungs after cardiac death were stored. In transplantation of organs which had received a lavage the survival proved to be significantly improved. A clinical study on the infection of Pseudomonas has investigated whether surgery of the nasal cavities would improve the incidence of bacterial infection in lung transplanted patients. Patients with cystic fibrosis have been evaluated. In the treated patients an improved bacterial profile could be observed. In the same context it has been evaluated whether nasal polyps are associated with Pseudomonas infection. In fact Pseudomonas infection is more frequent after transplantation and proves to be a risk factor for nasal polyps.

Pancreas transplantation

Along with the research for marginal donor organs due to organ shortage new techniques are tested which decrease the risk in the transplantation and therefore offer additional possibilities. In children's organs often technical problems are encountered due to small vascular anastomoses. A simplification of the surgical technique could be achieved by means of en-bloc transplantation of kidney and pancreas.

Dermatology

An experimental study in keratinocytes has investigated whether immunosuppression with methyl prednisolone or cyclosporine after transplantation increases the prevalence of skin cancer (squamous cancer). The transcription factors RAGE and NFkB have been activated by incubation with these medicaments in keratinocytes. It has been concluded that pre-inflammatory reaction of these cells might co-influence the cancer risk.

General

The Swiss Transplantation Cohort has again been used intensively for data evaluation in 2014. In addition there has been a series of publications on the subject of lung/heart transplantation which originate from data out of a separate register.

2.4. Continuing education

Nicolas Müller – member scientific committee TNT

Our seminar *Hot Topics in Transplantation (TNT)* has again demonstrated the variety of scientific activities on a national and international level, which is shown by the list of highly notable and also internationally renowned referees. This is only possible with the support of a generous sponsoring (Astellas Pharma AG, MSD AG, Novartis Pharma Switzerland AG, Pfizer AG, Sanofi and Roche Pharma (Switzerland AG)), for which we would like to express our sincere gratitude at this point!

Michael Koller from Basel, the clinical epidemiologist of the Swiss Transplant Cohort Study, spoke on the great possibilities of the STCS and thus has hopefully generated ideas for new projects. The DCD program which has been successfully resumed in 2011 has been discussed from the point of view of lung transplantation (Prof. Inci); Dr. Tolboom reported on experimental trials which would allow transplanting even the hearts of these donors. P. Gerber from the Clinic of Endocrinology, Diabetology + Clinical Nutrition presented the excellent long-term results after islet cell transplantation at the USZ. M. Lesurtel demonstrated that platelets after liver transplantation are important not only for coagulation. In an extremely interesting lecture Prof. Holler from Regensburg gave us an understanding of the role of microbiome in stem cell transplantation. In a very informative and practice-related dual lecture Prof. P. Reinke and Prof. H.-D. Volk from the Charité Berlin reported on a biomarker-based individualisation of immunosuppression, also after viral infection; these concepts were practically discussed on the basis of case histories. Reconstructive transplantation always represents a fascinating subject – Prof. Morelan from Lyon reported on their wide experience. An increasingly important issue are the long-term consequences after transplantation, at which skin tumours rank among the most prominent. Dr. de Gruijl spoke on animal models for the study of this important complication.

2.5. Swiss Transplant Cohort Study (STCS)

Nicolas Müller – Chairman of the Scientific Committee STCS

The STCS has gone through a year of consolidation: After the cohort had again been judged as worthy of support by the Swiss National Science Foundation in the autumn 2013, the work goes on! The first scientific papers are now published, and in total >65 projects – partly under Zurich guidance, all of them with Zurich participation – are on the way. Zurich is bearing the major burden of the enrolled patients – out of a total of 4146 patients 1477 or 1/3 have been transplanted in the Zurich centre. This is presenting us with a considerable logistic challenge in order to ensure a perfect processing of the samples and the data collection. Our special thanks go to all those who have contributed!

3. Organ donation network

3.1. Organ donation activities 2014

Since the separation of the organ donation side from the recipients' side the activities of the Donor Care Association are referred to in a separate report.

4. General care of transplant recipients in the Transplant Centre

4.1. Anaesthesiologic aspects of transplantation

Marco Zalunardo
Rolf Schüpbach

4.1.1. TPL anniversary

The TPL Centre of the USZ has organized various events in the scope of its 50 years anniversary. Thereby the Institute for Anaesthesiology had the opportunity to present the tasks and role of anaesthesia during transplantation for patients and relatives on the common internet platform of the USZ.

4.1.2. Organisation

The consultant service of anaesthesiology has been professionalised in the process along with the transplantation coordination. The waiting periods for patients could thus be reduced.

Until recently there have been gaps in the information chain in urgent listings. Thanks to the support of the Transplant Centre it has become a routine in the meantime that potential recipients who are treated in the USZ outside of the usual listing process and are only secondarily considered for transplantation (admission via reanimation room/intensive care unit) can be assessed by senior staff physicians of the IFA TPL team even before urgent listing.

The process of organ harvesting in the OP in potential DCD donors has been redefined in collaboration with the DCA team under the guidance of Renato Lenherr. On this basis we have succeeded to guarantee a satisfactory process for all involved within the daily OP routine.

4.1.3. Clinic

The numbers of transplanted organs and of recipients taken care of, respectively, have stayed more or less the same as in the two previous years, with the exception of pancreas transplantations which have decreased by 50 percent. The transplantation team of the IFA has consolidated; fluctuation is very low.

4.1.4. Research/Science

Rolf Graf – Research representative

The members of the Transplant Centre have published close to 40 publications in 2014 focused on transplantation and associated subjects. The research work concentrates on the different phases of transplantation: preparation and assessment of recipients, improvement of the medical condition on the waiting list including bridging devices, methodology and procedures in explantations, improvement of donor organs, long-term consequences of chronic immunosuppression, monitoring and diagnostic procedure in patients with known preoperative viral disease.

In the field of cardiac surgery it's about assist devices as well as monitoring and outcome in recipients (1, 4, 12, 25-27, 36). In liver transplantation the improvement of donor organs is in the foreground, along with postoperative clinical parameters as indicators for survival (16, 17, 22, 28-30). Adherence to medication taking was an issue in patients after renal transplantation (7). In lung transplantation matters of organ improvement as well as postoperative infections stood in the foreground (11, 31). The problem of HLA compatibility and immune cell response was subject of several clinical studies in stem cell transplantation (2, 3, 10, 15, 18). The improvement of islet preparation still represents a current topic in the treatment of diabetes (38). Pre- and postoperative infections, predominantly of viral nature, have been investigated by means of studies of the Transplant Cohort. These infections are often in connection with immunosuppression (6, 9, 13, 20, 24, 33, 35, 37). The problem is also reflected in studies on skin alterations, mostly of oncological nature, in patients after organ transplantation (8, 34). Finally other topics of methodological nature as well as of treatment concepts are subject of research projects (5, 14, 23, 32).

4.2. Nursing care in the Transplant Centre

Beatrice Biotti – Nurse representative

4.2.1. Inpatient TPL care

By means of the concept "Promotion of self-management of patients and family members" the procedures prior and after kidney-, liver- and lung transplantation have been adapted in 2014. The procedures of structured information and promotion of self-management of patients and their relatives after kidney- and liver transplantation have been standardised and identically set up in the electronic documentation system. For new collaborators the guidelines have been revised, simplified and completed with exemplary texts and questions for these education sequences. Kidney- and liver transplanted patients are attended to in the inpatient care according to state-of-the-art.

4.2.2. TPL network

The „Swisstransplant Arbeitsgruppe Pflegefachpersonen“ (STAPF) is a SwissTransplant working group of nurses in the field of organ transplantation. It is subordinated to the Comité Médical, to which it is reporting once a year. At the same time STAPF is functioning as “Network of Transplant Care Switzerland” and as such has its own web presence and logo (www.natx.ch). The objective of the association Network of Transplant Care Switzerland is to improve the long-term transplantation success and the quality of life of transplanted persons in common and in collaboration with other working groups and qualified professionals.

The Network of Transplant Care Switzerland is strongly promoted by the medical domain metabolism-abdomen, since the USZ is one of the largest transplant centres and disposes over a substantial knowledge in patient care.

Within this scope the medical domain metabolism-abdomen is also promoting the continuous further education of nurses in the specialist field transplantation. In collaboration with the Network of Transplant Care Switzerland and the Kaloiodos University of Applied Sciences a Certificate of Advanced Studies in Transplant Care has been elaborated. The pilot module will start in March 2016.

4.2.3. Advanced Nursing Practice (ANP) „Kidney Transplantation“

The contact list to the education brochures has been completely updated in both languages (German and Italian).

Advanced practice nurse (APN) Cosultation

One-time training and consultation for all freshly transplanted patients.

Within the scope of the nursing care consultations 212 training- or consultation interviews with patients after kidney transplantation have been conducted by the ANP nursing expert. Part of these training- and consultation interviews, which took place within the scope of the study, was conducted telephonically. In addition in two cases patients with renal insufficiency have been advised specifically on relevant issues.

Program „Transplanted support Transplanted“

An exchange of experiences could be mediated via the Swiss Transplanted Association between a freshly transplanted Italian-speaking patient from the Canton of Ticino and an experienced transplanted.

Control Study „Advanced nursing practice (ANP) Education program on Health Behaviour“

Additional 22 patients have been included in the study “Impact of an Advanced Nursing Practice Education Program on Weight Gain, Motion Behaviour and Medicament Intake”. By the end of 2014 a total of 52 patients participated in the study. The calculation of the number of cases was made on the basis of pilot data (n=20) which confirmed the required number of about 120 test persons. The steering committee decided to continue the study until 2018 in order to achieve the required number of test persons. Newly also foreign-language patients as well as patients with cognitive limitations or the disability to read or write shall be included in the study.

Peer-reviewed publications

Denhaerynck K., Schmid-Mohler G., Kiss A., Steiger J., Wüthrich R.P., Bock A., De Geest S. (2014). Differences in Medication Adherence between Living and Deceased Donor Kidney Transplant Patients. *International Journal of Organ Transplantation Medicine*, 5(1):8-13.

Schmid-Mohler, G., Schäfer-Keller, P., Frei, A., Fehr, T., Spirig, R. (2014). A Mixed-Method Study to Explore Patients' Perspective of Self-Management Tasks in the Early Phase after Renal Transplantation. *Progress in Transplantation*.

Congress presentations

Schmid-Mohler, G., Schnarwyler B. (2014, November, 20-22). Den Übergang vom Kinderspital ins Erwachsenenospital bei nierentransplantierten Jugendlichen gestalten (Transition). Oral presentation at the 9th Dreiländer-Kongress Fachverband Nephrologischer Berufsgruppen (FNB), Constance, Germany.

4.2.4. Advanced Nursing Practice (ANP) „Liver transplantation“

In 2014 the two education brochures “Need-to-know for the preparation of liver transplantation” and

“Need-to-know for the life after liver transplantation” have been finalized and printed. On 60 and 70 pages, respectively, concerned persons get comprehensive information and practical advice on all relevant topics around liver transplantation. The brochures are delivered in the scope of the APN nursing consultation and the inpatient training after transplantation. Thanks to the generous financing by the USZ, Roche Pharma, Biotest AG, Astellas and Novartis Pharma the brochures can be delivered free of cost to the patients.

The brochures have been presented in a total of 15 education and information events, the majority of them being collaborator trainings of nurses in inpatient care regarding the handling of the brochures within the scope of patient education. In addition information lectures took place in the intensive care unit of Visceral- and Transplantation Surgery and also in the Annual Meeting of the Swiss Transplantation Society. Moreover the brochures have been implemented at the Cantonal Hospital of St. Gallen and the rehab clinic Davos Clavadel. Both institutions are important partners in the preliminary and follow-up care, respectively, of liver transplanted patients. The translation of the brochures or of individual subject entities, respectively, is provided.

Nursing consultation liver transplantation

Since September 2014 the nursing consultation liver transplantation at the USZ offers an additional care supply for patients and their family members before and after liver transplantation. The nurse expert APN has conducted 21 consultations within the nursing consultation. The focus of the nursing consultation liver transplantation is on the following topics:

- Continuous attendance of patients and family members
- Patient and family members' education
- Necessity-oriented support by self-management over the entire procedure

The elaboration and orientation of the nursing consultation liver transplantation has been presented in an oral contribution at the Swiss SBK Congress in Basel 2014.

Study “Evaluation of the nursing consultation liver transplantation”

The implementation of the education brochures and the nursing consultation is evaluated in a study in the “before-and-after” design. The “before” rating has been conducted by means of a questionnaire in July 2014. The study has been approved by the cantonal Ethics Committee.

4.3. Infectious disease service of transplanted patients

Nicolas Müller – Infectious disease specialist

1170 infectious disease consultations including follow-up consultations have been documented in 2014 by our consult service in patients in connection with transplantation. This corresponds to approximately 18% of all infectious disease consultations held at the USZ. This emphasizes the high significance of infectious disease treatment and prevention in recipients of new organs or of stem cells or islets. In addition to this service on call all new patients on the waiting list for kidney, pancreas or islet cells are routinely examined with regard to their serology and past infections. The regular participation in the weekly rounds of stem cell transplanted as well as freshly kidney- or pancreas transplanted patients ensures a continuous interaction and close cooperation. The round for liver transplanted patients implemented in 2013 has become well established in the meantime. The optimal infectious disease management is also ensured by regular revisions of the different guidelines.

4.4. Dermatological follow-up of transplanted patients

Günther Hofbauer – Dermatology

Recipients of solid organs and also of bone marrow/stem cells are seen in the specialized consultation for immune suppressed patients of the Clinic of Dermatology. Under the guidance of Prof. Günther Hofbauer more than 2'100 consultations were held in the year 2014. The main focus of this consultation is on prophylaxis, early detection and treatment of the white skin carcinoma (spinocellular skin carcinoma), which represents the most frequent malignant tumour as consequence of long-term immunosuppression. On the one hand existing tumours are detected and removed within the scope of the pre-transplant

assessment. On the other hand transplanted patients are advised of the risk of white skin cancer and are taught prevention by appropriate behaviour, clothing, application of sunscreen and early detection.

Within the scope of a multicentric study we have also learned from our patients that spontaneous pains of a skin alteration or painfulness to touch indicate a probability of approximately 75% for the presence of a spinocellular skin carcinoma. This study has been published in 2014 in the American Journal of Transplantation. These tumours are frequent in transplanted patients and should by all means be removed as long as they are still small. Hence the general recommendation to our patients and co-attending colleagues is to envisage immediate surgical removal in the presence of a painful skin alteration.

4.5. Psychosocial evaluation of transplanted patients

Josef Jenewein – Psychiatry

4.5.1. General retrospect

The psychiatric-psychotherapeutic evaluation of transplanted patients, donors and collaborators of the USZ is conducted by the Division of Consultant and Liaison Psychiatry of the Clinic of Psychiatry and Psychotherapy (Direction: Prof. Dr. Josef Jenewein).

The number of psychic evaluations and treatments in patients and donors with altogether more than 1600 consultations in 2014 has slightly decreased compared to the previous year

4.5.2. Organisation of the team

The team consists currently of three senior physicians with a medical specialty degree in psychiatry and psychotherapy (total job extent 180%) and one psychologist (60%). Our senior physician Dr. Angela Brucher regretfully has left the clinic. Fortunately we have been able to fill the vacancy with Dr. Claudia Husung by April 1st, 2014.

4.5.3. Research

The prospective study on life quality and psychic stress in patients by and after lung transplantation has been successfully concluded in 2014. The results in a total of 40 patients demonstrate that lung transplantation leads to a significant improvement of life quality within 6 months in the majority of patients. There is, however, a group of approximately 25% in whom no such trend could be observed. Risk factors for a less favourable course were: age, severity of disease, longer duration of hospitalisation (intensive care and regular inpatient care unit) as well as comorbidities. The results have been submitted for publication.

5. The individual transplantation programmes

5.1. Allogeneic stem cell transplantation

Urs Schanz - Haematology

We are pleased to report that in 2014 the allogeneic transplantation activities with 53 allogeneic stem cell transplantations have again significantly increased compared to the previous year (2013, n=47). The percentage of non-related transplantations was 40%, the percentage of related transplantations accordingly 60%. Furthermore the number of reduced intensive conditionings (60%) predominates corresponding to the increasing age of patients. In the reporting year we have performed for the first time haploidentical transplantations with a new immunosuppression scheme, the so-called post-transplant cyclophosphamide. Thereby the rather toxic calcineurin inhibitors can be omitted, which hopefully will result in an improved life quality for the patients. The results of first international studies are quite promising with regard to survival.

The planning of the new 16 beds ward has been concluded some time ago, as mentioned in the previous report. Fortunately the building license has been granted in the beginning of 2015 so that the move-in of the new ward can be expected for end 2018/beginning 2019. This will further strengthen the position of the Zurich Transplant Centre and we will be well equipped for the future. Until then, however, the increasing bed shortage will become an increasing problem and represents an enormous challenge.

5.2. Autologous stem cell transplantation

Panagiotis Samaras – Oncology

In collaboration with the City Hospital Triemli 98 patients (compared to 92 patients in 2013) have been treated with high dose chemotherapy and ensuing autologous stem cell transplantation in the past year. Main indication was multiple myeloma, followed by lymphoma. Less frequent indications were acute leukaemia, germ cell tumours and sarcomas. In total 107 aphereses were conducted in 83 patients (1.29 aphereses per patient). The increase of the number of stored unused preparations already described in the previous years has been insignificant in 2014; thus 691 cryoconserved stem cell concentrates have been stored by the end of the year (compared to 683 concentrates in 2013, see also Table 1).

Mortality of the autologous transplantation program at the USZ in 2014 was around 2% and thus again significantly below the worldwide reported average of just under 5%.

Variable	N	% Difference to previous year
Autologous stem cell transplantations	98	+ 7%
Stem cell collections	107	0%
Stored stem cell concentrates (cryoconserved)	691	+ 1.2%

Table 1: Relation of autologous stem cell transplantations and collections

5.3. Heart transplantation

Markus Wilhelm – Cardiac surgery /Frank Ruschitzka – Cardiology

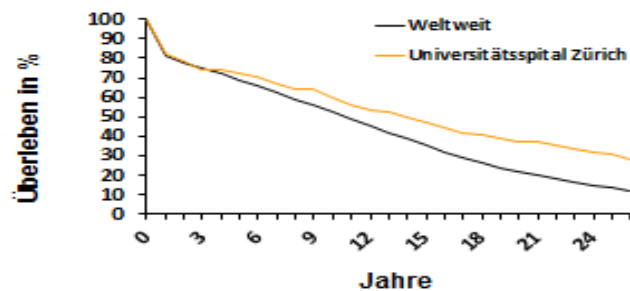
In 2014 16 heart transplantations could be performed at the USZ and the University Children's Hospital Zurich, one of them combined with lung transplantation. This is the largest number of heart transplantations conducted in a Swiss Centre since 15 years. The short- and long-term course survival rates are still excellent (Fig.1+2). With regard to experimental research our team is currently investigating how hearts after death in cardiac arrest can be made transplantable by machine perfusion with specialised solutions. This could be a future method in order to reduce the shortage of donor hearts.

The implantation of short- and long-term heart support systems has again taken up a central part in our therapy concept of terminal cardiac insufficiency. In more than 40% of the transplanted patients the waiting period until heart transplantation has been bridged by a heart support system. In addition heart support systems have been used as alternative to heart transplantation when due to the comorbidities a heart transplantation was out of the question ("destination therapy").

The short-term-use circulatory and lung support systems ("ECMO") represent an important component in the therapy of cardiac and respiratory failure. With again just under 100 the number of uses in 2014 was comparable to the previous year. In some cases of non-transportable patients the ECMO was implanted in external hospitals with subsequent transportation to the USZ. To this aim there exists a close cooperation with the REGA.

From an experimental point of view there has been progress in the development of a physiological heart support systems in collaboration with the ETH.

HTPL ZÜRICH - Im internationalem Vergleich
 Überlebensrate nach HTPL-Zürich 1984-2014 (Kaplan-Meier)
 Internationale Überlebensrate nach HTPL 1982-2012 (Kaplan-Meier)



5.4. Lung transplantation

Sven Hillinger – Thoracic surgery / Macé Schuurmans – Pneumology

In the reporting year we could increase our number of lung transplantations by 14% to 32 bilateral sequential transplantations. Since the start of lung transplantation at the USZ out of a total of 443 transplantations the lungs of 429 DBD and 14 DCD donors were transplanted. 14 donor lungs were connected for evaluation to the ex-vivo lung perfusion (EVLV) system, 5 thereof were successfully transplanted.

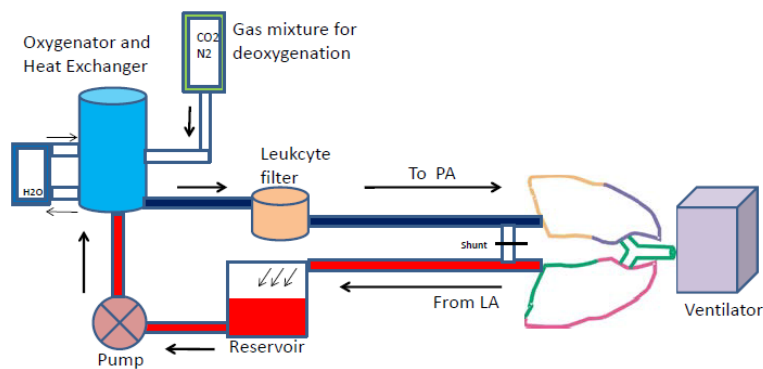


Figure 1: Ex vivo lung perfusion system: The perfusion circuit comprised a centrifugal pump, membrane oxygenator supplied with 91% nitrogen and 9% carbon dioxide gas serving as a de-oxygenator, a venous reservoir, a heat exchanger and polyethylene tubing. PA: Pulmonary artery, LA: Left atrium.

Our efforts to offer our experience with EVLP in a Swiss Organ Assessment and Reconditioning Centre (SOAREC) in Zurich and thus to optimize the local allocation for all Switzerland were not welcomed by the lung transplantation team and Lausanne would like to implement itself this technique in the future. Currently worldwide only approximately 25-30% of the lungs are transplanted from multiorgan donors; we in Switzerland already exceed this number clearly (see Table below). We expect by the ex vivo lung perfusion again a certain expansion of the donor pool, however, but altogether also an improvement of the quality of donor lungs in selected cases.

Number of donors and lung transplantations performed in Switzerland

Year	2009	2010	2011	2012	2013
Donor N.	103	98	102	96	110
N. of LuTx	39	49	54	52	45
LuTx (%)	38	50	52	54	41
Rejection (%)	62	50	48	46	59

Data adapted from Swisstransplant Annual Report 2013. N, number, LuTx, lung transplantation

Prof. Dr. Ilhan Inci, whose clinical and experimental research is focused on the field of lung transplantation, has been awarded the titular professorship in 2014.

PD Dr. Dr. Wolfgang Jungraithmayr has applied for an assistant professorship in the field of experimental lung transplantation at the University of Zurich. The implementation is expected for 2015.

Dr. Yoshito Yamada, thoracic surgeon from Tokyo, has extended his stay with us and is furthermore on our side strongly supporting us in clinical as well as in experimental projects. Further intensive support in both fields is provided by Dr. Ylenia Pecoraro, visiting physician from Rome.

In the TNT Seminar of August 25, 2014, Prof. Ilhan Inci spoke on the subject "How to deal with donor organ shortage: Utilization of Donation after Cardiac Death (DCD) Donors in Lung Transplantation".

The autumn symposium of our Transplant Centre took place in November, 2014 under the motto "50 years of lung transplantation". Prof. Walter Weder reported on "Lung transplantation from the pioneer era to the present and future

Within the scope of recertification of the Transplant Centre several standard operating procedures (SOPs) have been revised and updated and new documents elaborated, respectively, which standardise the systematic procedure in diagnostics and therapy of complications after lung transplantation.

After the replacement in the medical direction of transplantation pneumology there has been a phase of consolidation under the new medical director PD Dr. Christian Benden.

The staff of the team of transplant pneumology has remained unchanged and was only completed by the engagement of the social worker Mr André Königs who is in particular responsible for patients with cystic fibrosis (CF).

The assessment of ambulant patients referred for evaluation of a possible lung transplantation has been optimized, which resulted in a reduction of waiting periods after referral and also in shorter intervals between consultations. In the reporting year 37 patients have been assessed on the inpatient ward followed by interdisciplinary discussion with regard to indication and listing.

With regard to research we have been able to realize a number of publications and presentations, respectively, on a national as well as international level (ISHLT Registry, SysCLAD study). The elaboration and evaluation of the international ISHLT Registry data as well as the collaboration in consensus guidelines for lung transplantation are activities of PD Dr. C. Benden. The prospective international multicentre study "SysCLAD – systems prediction of chronic lung allograft dysfunction" has been concluded in the autumn and first results have been presented internationally. Several research projects for the scientific evaluation of our clinical practice (clinical audit) have been initiated. One of these projects on the question of pre-transplant cardiac evaluation by means of coronary angiography in candidates >50 years has already been accepted for publication. A frequent problem are the respiratory viral infections acquired in outpatient care, which we are currently investigating prospectively on a molecular level (metagenomics) within the scope of an interdisciplinary project with the team of infectious diseases and medical virology.

Lung transplantation remains furthermore one of the main focuses in clinical as well as in experimental research of the Clinics for Thoracic Surgery and Pneumology. In 2014 a total of 20 predominantly international publications and numerous scientific presentations have resulted.

5.5. Liver transplantation

Philipp Dutkowski – Visceral surgery / Beat Mülhaupt - Gastroenterology

In 2014 43 liver transplantations have been performed (vs. 41 in the previous year). The median MELD (Model for Endstage Liver Disease) score at the time of transplantation in 2014 was at 22 (vs. 21 in the previous year).

Altogether 12 DCD (Donation after Cardiac Death) liver transplantations have been performed in 2014 after previous *ex vivo* graft optimization by means of hypothermic oxygenated perfusion (HOPE). The results obtained so far show no significant difference compared to DBD (Donation after Brain Death) livers (Journal of Hepatology 2014, 60, 765-72).

Table 2. Postoperative follow-up within 1 year after OLT.

	DBD n = 8	DCD n = 8
Primary non-function	0/8	0/8
Delayed graft function	0/8	0/8
Acute kidney failure requiring intermediate dialysis/hemofiltration	3/8	2/8
Arterial thrombosis	0/8	0/8
Extrahepatic biliary complications (strictures, leaks)	2/8	2/8
Intrahepatic biliary cholangiopathy	0/8	0/8
Rejection (biopsy proven within 6 mo after transplantation)	5/8	1/8
Infection	1/8	1/8
Sepsis (+ SIRS)	0/8	1/8
Secondary tumor	0/8	2/8*
Tumor (HCC) recurrence	0/1*	0/6*
Re-listing	0/8	0/8
Re-transplantation	0/8	0/8
6 month graft survival	100% (8/8)	100% (8/8)

*No. of HCC in cohort.

‡1× intrahepatic lymphoma, 1× lung cancer.

5.6. Kidney transplantation

Thomas Müller – Nephrology / Olivier de Rougemont – Visceral surgery

In 2014 altogether 84 kidney transplantations have been performed at the USZ, whereof 7 kidneys were transplanted in combined organ transplantations: 5 combined with pancreas, one combined with islets within the scope of beta cell replacement therapy and one kidney/liver transplantation.

The numbers of living donors have stayed stable in the past three years with 22 performed transplantations per year. In February 2014 for the first time Swisswide a triple-crossover transplantation, i.e. simultaneous harvesting of three kidneys from living donors and three transplantations in paired recipients at the same centre, could be performed successfully. Moreover a further double-crossover transplantation has been conducted. We are pleased by the increase of donor registrations: in 2014 altogether 88 donor cases have been handled compared to 64 in the previous year. Of these 88 donor cases unfortunately 32 had to be declined as donors for medico-social reasons – at which the decline rate of 40% demonstrates the increasing complexity of potential donors on the one hand as well as the thoroughness of the very intensive work-up with the objective to provide optimal safety for the donor.

Five kidneys have been transplanted in paediatric patients, whereat the youngest recipient was two years old. The increasing use of marginal and very complex donor organs represents a steadily growing trend. The yielding and transplantation of DCD organs have almost been doubled in 2014 compared to the

previous year, i.e. from 6 to 11. Also a dual kidney transplantation has been conducted in 2014. With this modality also organs from advanced age donors can be harvested. Both kidneys – in this case from an 81 years old donor – have been successfully transplanted in a receiver.

After the short-term restructurings in 2013 the team of kidney transplantation of the Clinic of Visceral Surgery has been reorganized in August 2014. New members of the team are Dr. Olivier de Rougemont, who has returned from a fellowship at the Guy's Hospital London and is now acting as team leader, Dr. Christian Oberkofler has been promoted to senior physician and Dr. Kerstin Hübel could be engaged as nephrologist. Dr. Kuno Lehmann has continued his activity in the field of kidney- and pancreas transplantation.

In order to optimise the transparency and communication with the referring centres it has been determined that in case of decline of a kidney offer the attending colleagues of the respective patient are informed about the reason of decline. In addition special consultations for highly immunised and complex patients and their families have been established which were met with very positive response.

Within the scope of public relations for the first time a barbecue for donors and their families together with the transplantation team has been organized in Zurich. In addition an information event on the subject 'Living Donation – Altruism in our Society' took place jointly with representatives of the ethics and psychosocial medicine as well as patients and interested persons. Moreover a television programme on the subject of kidney transplantation-living donation was transmitted in TeleTop with the participation of a patient, surgeon and nephrologist.

The outpatient transplant care of the Clinic for Nephrology has attended to a total of 5283 presentations of kidney transplanted patients in 2014, which corresponds to an increase of further 155 patient consultations compared to 2013.

5.7. Pancreas transplantation

Roger Lehmann – Endocrinology and diabetology

No pancreas transplantations took place at the USZ in 2014.

5.8. Islet transplantation

Roger Lehmann – Endocrinology and diabetology

5.8.1. 100th islet transplantation

In 2014, fourteen years after the first islet transplantation with modern methods on June 30, 2000, the 100th islet transplantation has been conducted at the USZ on October 23, 2014.

5.8.2. Donors and transplanted islets

The number of multiorgan donors in Switzerland has remained stable on a low level (99), whereas the number of DCD donors has increased (18). These DCD donors constitute a possible potential for islet transplantation, provided that the time processes can be optimized and the warm ischemia time can be reduced in order to yield suitable islets in sufficient quantities.

The number of pancreas- and islet transplantations in Switzerland was 24, whereof more than 50% (13) have been conducted in Zurich. The comparison of multiorgan donors with transplanted organs demonstrates that the tendency to marginal organ donors has been continued. The mean age of donors is at 51 years, whereupon the younger donors are preferentially allocated to pancreas transplantation and the 35% of organs from donors >60 years are predominantly offered for islet transplantation. This certainly contributes to a less favorable function of the transplanted islets. The waiting list for pancreas- and islet transplantation has increased to 95 persons.

The 7 islet transplantations are allocated as follows to the different categories: 1 simultaneous islet-kidney transplantation and 1 autotransplantation, 4 islet-post-kidney transplantations and 1 islet transplantation alone.

In this year a comparison of all pancreas- and islet transplantations since 2000 with a 13-years follow-up has been published in Diabetes Care, the most prestigious diabetological journal (see figures: islet transplantation in red).

We could demonstrate that the glycaemic control value (HbA1c) is practically identical in both methods for beta-cell replacement (fig. 1a), with the difference that most patients with pancreas transplantation are insulin dependent and the majority of patients with islet transplantation needs small doses of insulin. The glycaemic control in islet transplantation is good enough, though, to halve the decline in kidney function in contrast to patients without beta-cell replacement (kidney transplant alone, KA or living donor kidney LDK) (see table) and is equal to pancreas transplantation (Fig. 1b). The complication rate is much higher in pancreas transplantation (relaparotomy: 37 vs 5%) (Fig. 1c).

Fig. 1a): HbA1c during follow-up

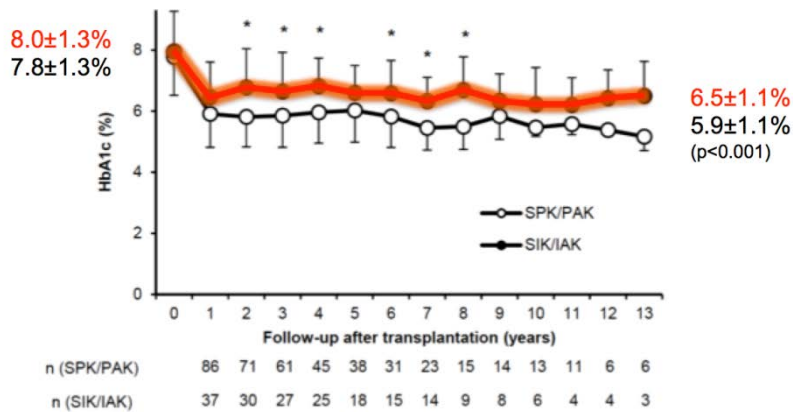


Fig. 1b): Decline in kidney function (eGFR; ml/min) during follow-up

Fig. 1c): Side effects: relaparotomy rate

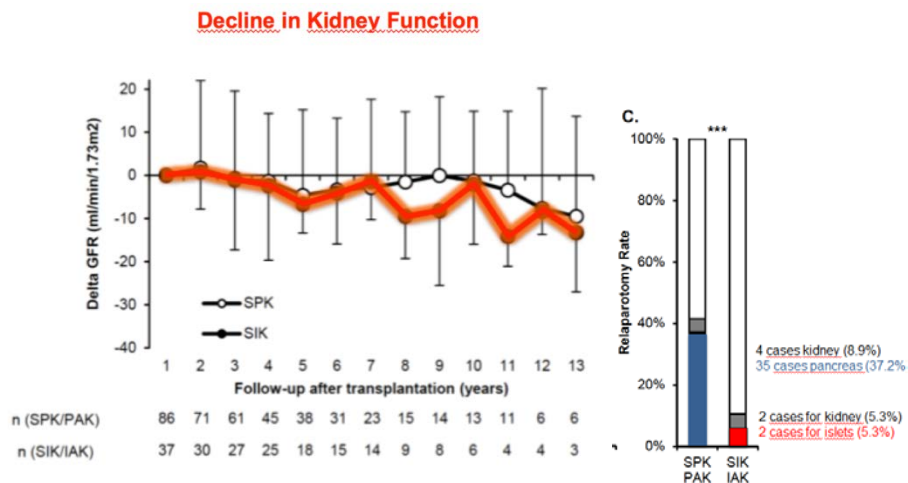


Table: Comparison of the yearly GFR decline rate in SPK, SIK and patients with kidney transplantation

	Results as reported by this study / collected at our center			Results as reported by Ref. 27	
	SPK	SIK	KA	SPK*	LDK*
Patients included (n)	93	23	32	25	17
Female gender (%)	47.3	47.8	62.5	20.0	47.1
Age at transplantation (y)	44.3 ± 7.7	51.6 ± 9.5	43.5 ± 10.4	41.2 ± 6.9	40.5 ± 10.3
Diabetes duration before transplantation (y)	32.2 ± 8.2	36.0 ± 10.8	30.4 ± 10.2	29 (15-41)	25 (17-51)
Mean HbA1c during follow-up (%)	5.8 ± 0.8	6.6 ± 1.0	8.1 ± 1.0	5.5 ± 0.4	8.3 ± 1.5
Δ GFR per year (ml/min/1.73m ² /y)	-1.0 ± 1.0	-1.3 ± 1.2	-2.5 ± 0.5	-1.1 ± 2.1	-2.3 ± 1.5

We are planning to intensify the communication of the programme for islet and pancreas transplantation in major neighbour hospitals and to discuss potential candidates on-site jointly in bi-monthly intervals as well as to conduct follow-ups.

With regard to research the plates developed by us for the production of pseudoislets which have been laminated with nanoparticles could be patented in December. We are planning to strengthen the propagation of these plates for pseudoislets and stem cells on an international level.

The interdisciplinary collaboration with the Clinic of Visceral Surgery under the guidance of Dr. O. de Rougemont and the Clinic of Nephrology under the guidance of Prof. Th. Müller with respect to the care of islet- or pancreas- and kidney transplantations works extremely well; all patients are discussed in monthly intervals and the indication for pancreas- or islet transplantation is decided jointly with the patient.

5.9. Small bowel transplantation

No small bowel transplantations have been performed at the USZ in 2014.

5.10. Reconstructive transplantation

Jan Plock – Reconstructive surgery and hand surgery

In 2014 the medical basis for the interdisciplinary evaluation of patients with regard to reconstructive transplantation has been established at the USZ. Thereby the psychosocial evaluation plays a prominent role. The process of assessment and evaluation of potential donors has been defined as well as the transplantation itself and the follow-up and rehabilitation. On the basis of the current international data outcome with a long-term course of more than 15 years after the first successful hand transplantation and 10 years after the first face transplantation there is sufficient evidence to justify bilateral hand/arm transplantations and face transplantations from an ethical and medical point of view.

On an experimental basis studies with international collaboration have been continued which aim at the prolongation of ischemia duration by extracorporeal machine perfusion as well as at stem cell based immunomodulation in order to reduce the strain caused by medicament immunosuppression.

In the scope of the TNT seminar Prof. Emanuel Morelon was invited as guest lecturer, who spoke on the long-term course in hand/face transplantation patients from the Amiens/Lyon group and thereby informed in detail about complications in the course as well as about complex immunologic questions. The seminar was attended by a large audience.

For the year 2015 several visits in international centres are planned for optimization of the strategy.

6. Attachments

6.1. Staff of the Transplant Centre 2014

Direktorium		Kuratorium
Head	Coordinators	Chairman
	Prof. Nicolas Müller	Prof. Pierre-Alain Clavien
Heart	Prof. Frank Ruschitzka PD Dr. Markus Wilhelm	Prof. Thomas Lüscher Prof. Volkmar Falk/ Prof. F. Maisano
Lung	Dr. Macé Schuurmans PD Dr. Sven Hillinger	PD Dr. Christian Benden Prof. Walter Weder
Liver	PD Dr. Thomas Kuntzen Prof. Philipp Dutkowski	Prof. Beat Müllhaupt Prof. Pierre-Alain Clavien
Kidney	Prof. Thomas Müller Dr. Olivier de Rougemont	Prof. Rudolf Wüthrich Prof. Pierre-Alain
Pancreas and islet cells	Prof. Roger Lehmann	Prof. Giatgen Spinas Prof. Pierre-Alain Clavien
Small bowel- and multi- visceral transplantation	PD Dr. Christoph Gubler	Prof. Pierre-Alain Clavien
Stem cells	PD Dr. Urs Schanz PD Dr. Panagiotis Samaras	Prof. Markus Manz Prof. Roger Stupp
Reconstructive transplan- tations	PD Dr. med. Jan Plock	
Consultant services	Prof. Nicolas Müller, Infectious diseases Prof. Günther Hofbauer, Dermatology Prof. Josef Jenewein, Psychiatry	PD Dr. Urs Schwarz
Anaesthesiology	Prof. Marco Zalunardo	Prof. Donat Spahn
Care	Béatrice Biotti	Prof. Rebecca Spirig
Intensive care medicine	Dr. Peter Steiger	
Transplant coordination	Werner Naumer	
Research	Prof. Rolf Graf	
Data- & Quality manager	Uschi Schäfer	
Clinical manager	Andreas Käser	
Dean		Prof. Klaus Wilhelm Grätz

International Advisory Board

Heart	Prof. Ernst Wolner, Vienna, Austria
Lung	Prof. Dirk van Raemdonck, Leuven, Belgium
Liver	Prof. Xavier Rogiers, Ghent, Belgium
Kidney	Prof. Ulrich Frei, Berlin, Germany
Pancreas and islet cells	Prof. Peter Friend, Oxford, Great Britain
Stem cells	Prof. Bob Lowenberg, CA Rotterdam ZH, Netherlands
Anaesthesiology & intensive care medicine	Prof. Christian Putensen, Bonn, Germany

Local Advisory Board of the Transplant Centre

Bellinzona	Ospedale San Giovanni	Prof. Dr. med. Claudio Marone
Chur	Rät. Kantons-/ Regionalspital	PD Dr. med. Reto Venzin
Faltigberg-Wald	Zürcher Höhenklinik Wald	PD Dr. med. Matthias Hermann
Frauenfeld	Kantonsspital	Dr. med. Markus Hugentobler
Gais	Klinik Gais AG	Dr. med. Angelika Bernardo
Luzern	Kantonsspital	Dr. med. Dominique Criblez
Seewis	Rehabilitationszentrum	Dr. med. Willhard Kottmann
St. Gallen	Kantonsspital	Dr. Dr. med. David Semela
Winterthur	Kantonsspital	Dr. med. Thomas Kistler
Zollikerberg	Spital Zollikerberg	Dr. med. Jörg Bleisch
Zürich	Stadtspital Waid	Prof. Dr. med. Patrice Ambühl

6.2. Transplantation activities 2008 – 2014

Organ	2008	2009	2010	2011	2012	2013	2014
Heart total	9	9	12	14	11	10	16
- Heart and kidney	1	0	0	0	0	1	1
Lung total	25	26	26	30	33	28	32
<i>thereof DCD</i>	0	0	0	0	2	5	5
Liver total	28	50	45	47	43	41	43
- NHBD single-liver	23	44	41	39	39	27	28
<i>thereof DCD</i>	0	0	0	1	3	9	12
- Living donor liver	4	4	2	7	4	2	2
- Liver and kidney	1	2	2	1	0	2	1
- Liver and small bowel	0	0	0	0	0	1	0
Kidney total	83	85	88	100	84	87	84
- NHBD single-kidney	42	47	44	57	47	47	44
<i>thereof DCD</i>	0	0	0	6	9	6	11
- Living donor kidney	29	29	30	32	22	22	22
- Kidney and pancreas	10	7	9	9	10	11	5
- Kidney and islet cells	0	0	3	1	1	1	1
- Kidney and heart	1	0	0	0	0	1	0
- Kidney and liver	1	2	2	1	0	2	1
Pancreas total	10	7	9	11	12	15	7
- Pancreas alone	0	0	0	1	2	3	2
- Pancreas and kidney	10	7	9	9	10	1	5
- Pancreas/small bowel (multivisz)	0	0	0	1	0	1	0
Islets total	7	5	9	6	5	5	6
- Islet cells alone	7	5	6	5	4	4	5
- Islet cells and kidney	0	0	3	1	1	1	1
Small bowel/multivisceral	0	0	0	1	0	1	0
Stem cells total	-	-	119	147	128	139	151
- autologous	(not in TPLZ)	(not in TPLZ)	65	95	77	92	98
- allogeneic	36	34	54	52	51	47	53

Multi-organ donations at the USZ	2008	2009	2010	2011	2012	2013	2014
Donors from USZ	8	2	7	5	12	18	17
- <i>thereof DCD</i>	0	0	0	3	6	9	12
Donors from ZH network	7	10	3	7	7	6	9
Total donors USZ plus network	15	12	10	12	19	24	26

6.3. Outcome organ transplantations

Since 2013 the results are published nationwide for all centres. This is in accordance with the transplantation law and bylaw. The report is available on www.stcs.ch. An important task is coming up with the benchmarking project, since the absolute numbers can only be compared on a relative level.

6.5. Scientific publications 2014

1. **Amacher R, Ochsner G, and Schmid Daners M.** Synchronized pulsatile speed control of turbodynamic left ventricular assist devices: review and prospects. *Artificial organs* 38: 867-875, 2014.
2. **Benz R, Schanz U, Maggiorini M, Seebach JD, and Stussi G.** Risk factors for ICU admission and ICU survival after allogeneic hematopoietic SCT. *Bone marrow transplantation* 49: 62-65, 2014.
3. **Berger MD, Meisel A, Andres M, Schanz U, Schwarz U, and Stussi G.** Unusual case of progressive multifocal leukoencephalopathy after allogeneic hematopoietic stem-cell transplantation. *Journal of clinical oncology : official journal of the American Society of Clinical Oncology* 32: e33-34, 2014.
4. **Biefer HR, Sundermann SH, Emmert MY, Hasenclever P, Lachat ML, Falk V, and Wilhelm MJ.** Experience with a "hotline" service for outpatients on a ventricular assist device. *The Thoracic and cardiovascular surgeon* 62: 409-413, 2014.
5. **Bouwes Bavinck JN, Harwood CA, Genders RE, Wisgerhof HC, Plasmeijer EI, Mitchell L, Olsz EB, Mosel DD, Pokorney MS, Serra AL, Feldmeyer L, Baumann Conzett K, Piaserico S, Belloni Fortina A, Jahn K, Geusau A, Gerritsen MJ, Seckin D, Gulec AT, Cetkovska P, Ricar J, Imko-Walczuk B, Proby CM, and Hofbauer GF.** Pain identifies squamous cell carcinoma in organ transplant recipients: the SCOPE-ITSCC PAIN study. *American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons* 14: 668-676, 2014.
6. **Bucheli E, Kralidis G, Boggian K, Cusini A, Garzoni C, Manuel O, Meylan PR, Mueller NJ, Khanna N, van Delden C, Berger C, Koller MT, Weisser M, and Swiss Transplant Cohort S.** Impact of enterococcal colonization and infection in solid organ transplantation recipients from the Swiss transplant cohort study. *Transplant infectious disease : an official journal of the Transplantation Society* 16: 26-36, 2014.
7. **Denhaerynck K, Schmid-Mohler G, Kiss A, Steiger J, Wuthrich RP, Bock A, and De Geest S.** Differences in Medication Adherence between Living and Deceased Donor Kidney Transplant Patients. *International journal of organ transplantation medicine* 5: 7-14, 2014.
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9. **Gonzalez A, Schmitter K, Hirsch HH, Garzoni C, van Delden C, Boggian K, Mueller NJ, Berger C, Villard J, Manuel O, Meylan P, Stern M, Hess C, and Swiss Transplant Cohort S.** KIR-associated protection from CMV replication requires pre-existing immunity: a prospective study in solid organ transplant recipients. *Genes and immunity* 15: 495-499, 2014.
10. **Gungor T, Teira P, Slatter M, Stussi G, Stepensky P, Moshous D, Vermont C, Ahmad I, Shaw PJ, Telles da Cunha JM, Schlegel PG, Hough R, Fasth A, Kentouche K, Gruhn B, Fernandes JF, Lachance S, Bredius R, Resnick IB, Belohradsky BH, Gennery A, Fischer A, Gaspar HB, Schanz U, Seger R, Rentsch K, Veys P, Haddad E, Albert MH, Hassan M, Inborn Errors Working Party of the European Society for B, and Marrow T.** Reduced-intensity conditioning and HLA-matched haemopoietic stem-cell transplantation in patients with chronic granulomatous disease: a prospective multicentre study. *Lancet* 383: 436-448, 2014.
11. **Inci I, Yamada Y, Hillinger S, Jungraithmayr W, Trinkwitz M, and Weder W.** Successful lung transplantation after donor lung reconditioning with urokinase in ex vivo lung perfusion system. *The Annals of thoracic surgery* 98: 1837-1838, 2014.
12. **Jahren SE, Ochsner G, Shu F, Amacher R, Antaki JF, and Vandenberghe S.** Analysis of pressure head-flow loops of pulsatile rotodynamic blood pumps. *Artificial organs* 38: 316-326, 2014.
13. **Kaiser P, Maggio EM, Pfammatter T, Misselwitz B, Flury S, Schneider PM, Dutkowski P, Breitenstein S, Mullhaupt B, Clavien PA, and Mueller NJ.** Histopathological evidence of invasive gastric mucormycosis after transarterial chemoembolization and liver transplantation. *Infection* 42: 779-783, 2014.
14. **Keutgen XM, and Petrowsky H.** Procurement for visceral organ transplantation: where to cannulate and how to perfuse? *Current opinion in organ transplantation* 19: 92-99, 2014.
15. **Kirsch M, Gotz A, Halter JP, Schanz U, Stussi G, Dobbels F, and De Geest S.** Differences in health behaviour between recipients of allogeneic haematopoietic SCT and the general population: a matched control study. *Bone marrow transplantation* 49: 1223-1230, 2014.
16. **Lesurtel M, Raptis DA, Melloul E, Schlegel A, Oberkofler C, El-Badry AM, Weber A, Mueller N, Dutkowski P, and Clavien PA.** Low platelet counts after liver transplantation predict early posttransplant survival: the 60-5 criterion. *Liver transplantation : official publication of the American Association for the Study of Liver Diseases and the International Liver Transplantation Society* 20: 147-155, 2014.
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6.6. Transplantation awards 2014

On the occasion of the autumn symposium in November 2014 the awards of the Transplant Centre Zurich have been assigned for the 5th time. The awards have again been generously sponsored by Astellas Pharma, which is acknowledged with gratitude.

Experimental-scientific award:

Dr. med. Antonia Maria Müller, Division of Hematology USZ

"Donor hematopoiesis in mice following total lymphoid irradiation requires host T-regulatory cells for durable engraftment", published in Blood, 05/01/2014



Clinical-scientific award:

PD Dr.med. Tayfun Güngör, University Children's Hospital Zurich:

"Reduced-intensity conditioning and HLA-matched haemopoietic stem-cell transplantation in patients with chronic granulomatous disease: a prospective multicenter study", published in Lancet, 10/22/2013



Merit award 2014:

Team of the HTPL Ambulatory (picture shows representatives of the ambulatory)



Lifetime Achievement Award on the occasion of the 50 years anniversary of the first transplantation in Zurich:

Prof. Dr. Ulrich Binswanger (middle) and Prof. Dr. Felix Largiadèr (right), along with Prof. Dr. Nicolas Müller (left)



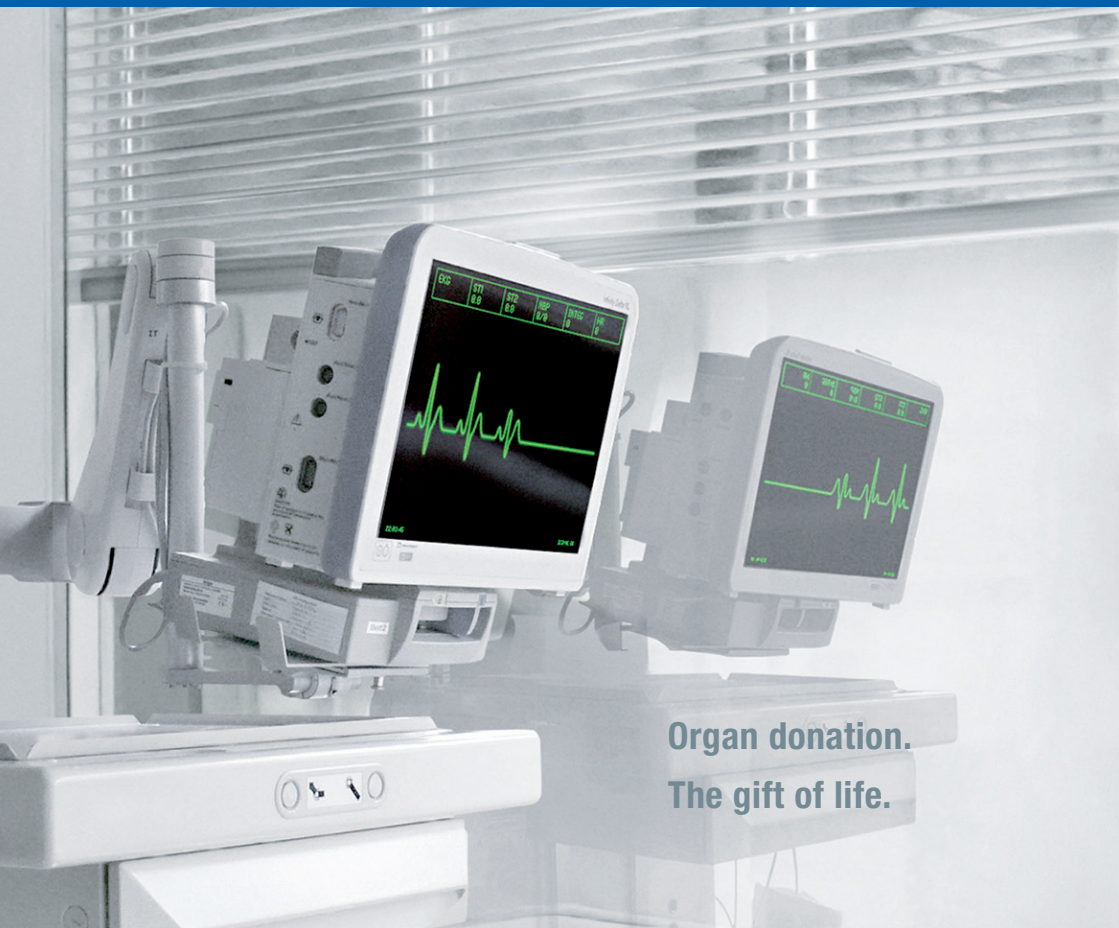
6.7. Continuing education programme 2014

6.7.1. Anniversary Symposium 2014 "50 Years of Transplantation in Zürich"

6.7.2. Monthly Seminar „Hot topics in transplantation“ (TNT) 2014

8. jährliches Symposium des Transplantationszentrums USZ

50 Jahre Transplantation in Zürich



Organ donation.
The gift of life.

Freitag, 21. November 2014, 13.15–18.30 Uhr
UniversitätsSpital Zürich, Grosser Hörsaal Nord



UniversitätsSpital
Zürich

Programm Symposium

12.15 Uhr **Stehlunch (Foyer Nord1 C + D)**

13.15 Uhr **Grussworte UniversitätsSpital Zürich**

Rita Ziegler, lic. oec. HSG, Vorsitzende der Spitaldirektion

13.25 Uhr **Grussworte Universität Zürich**

Prof. Dr. Dr. Klaus Wilhelm Grätz, Dekan, Medizinische Fakultät

13.35 Uhr **Das Transplantationszentrum – Rückblick und Ausblick**

Prof. Dr. Nicolas Müller, Leiter Transplantationszentrum, UniversitätsSpital Zürich

Transplantation im gesellschaftlichen Umfeld

Moderation: Trix Heberlein, ehemalige Stände- und Nationalrätin, Kanton Zürich
ehemalige Stiftungspräsidentin, Swisstransplant, Bern

14.10 Uhr **Einführung**

14.15 Uhr **Transplantation im Spannungsfeld zwischen Politik und Patient**

Prof. Dr. Felix Gutzwiller, Zürcher Ständerat, ehemaliger Direktor, Institut für Sozial- und Präventivmedizin, Universität Zürich

14.45 Uhr **Einführung**

14.50 Uhr **Swisstransplant – die Geschichte einer Institution**

PD Dr. Franz Immer, Direktor, Swisstransplant, Bern

15.10 Uhr **Einführung**

15.15 Uhr **Swiss Blood Stem Cells: Von den Anfängen zur Vision**

Dr. Grazia Nicoloso, Medizinische Direktorin, Blutspende SRK Schweiz

Programm Symposium

Transplantation: Die andere Sicht

15.35 Uhr

Einführung

Prof. Dr. Nicolas Müller, Leiter Transplantationszentrum, UniversitätsSpital Zürich

15.40 Uhr

Lesung aus dem Buch von David Wagner „Leben“, 2013

Dr.phil. Michael Pfister, Zürich

16.20 Uhr

Coffee Break (Foyer Nord1 C + D)

Transplantation: Anfänge und Zukunft im Universitätsspital Zürich

Moderation: Prof. Dr. Roger Lehmann, Leitender Arzt, Klinik für Endokrinologie, Diabetologie und Klinische Ernährung, UniversitätsSpital Zürich

16.45 Uhr

Lungentransplantation: Von der Pionierzeit zur Gegenwart und Zukunft

Prof. Dr. Walter Weder, Direktor, Klinik für Thoraxchirurgie, Aertzlicher Co-Direktor Spitaldirektion, UniversitätsSpital Zürich

17.15 Uhr

Von der ersten Herztransplantation bis heute

PD Dr. Markus Wilhelm, Leiter Herztransplantation und mechanische Kreislaufunterstützung, Klinik für Herz- und Gefässchirurgie, UniversitätsSpital Zürich

Prof. Dr. Frank Ruschitzka, Leiter Herzinsuffizienz und Herztransplantation, Stellvertretender Klinikdirektor, Klinik für Kardiologie, UniversitätsSpital Zürich

17.45 Uhr

Transplantation viszeraler Organe

Die Zukunft – ein Blick nach vorne

Prof. Dr. Pierre-Alain Clavien, Direktor, Klinik für Viszeral- und Transplantationschirurgie, UniversitätsSpital Zürich

18.15 Uhr

Awards Zurich Transplant Center

Moderation: Dr. Macé Schuurmans, Oberarzt, Klinik für Pneumologie, UniversitätsSpital Zürich

18.30 Uhr

Apéro (Foyer Nord1 C + D)

Redner

Prof. Dr. Pierre-Alain Clavien

Direktor
Klinik für Viszeral- und
Transplantationschirurgie
UniversitätsSpital Zürich

Prof. Dr. Dr. Klaus Wilhelm Grätz

Dekan, Medizinische Fakultät
Universität Zürich

Prof. Dr. Felix Gutzwiller

Zürcher Ständerat, ehemaliger Direktor
Institut für Sozial- und Präventivmedizin
Universität Zürich

Trix Heberlein

ehemalige Stände- und Nationalrätin
Kanton Zürich, ehemalige Stiftungs-
präsidentin Swisstransplant, Bern

Dr. Macé Schuurmans

Oberarzt
Klinik für Pneumologie
UniversitätsSpital Zürich

PD Dr. Franz Immer

Direktor, Swisstransplant, Bern

Prof. Dr. Roger Lehmann

Leitender Arzt
Klinik für Endokrinologie, Diabetologie
und Klinische Ernährung
UniversitätsSpital Zürich

Prof. Dr. Nicolas Müller

Leiter Transplantationszentrum
Klinik für Infektiologie und Spitalhygiene
UniversitätsSpital Zürich

Dr. Grazia Nicoloso

Medizinische Direktorin
Blutspende SRK Schweiz

Prof. Dr. Frank Ruschitzka

Leiter Herzinsuffizienz und
Herztransplantation
Stellvertretender Klinikdirektor
Klinik für Kardiologie
UniversitätsSpital Zürich

David Wagner

Schriftsteller, Berlin

Prof. Dr. Walter Weder

Direktor, Klinik für Thoraxchirurgie
Aerztlicher Co-Direktor Spitaldirektion
UniversitätsSpital Zürich

PD Dr. Markus Wilhelm

Leiter Herztransplantation und
mechanische Kreislaufunterstützung
Klinik für Herz- und Gefässchirurgie
UniversitätsSpital Zürich

Rita Ziegler, lic. oec. HSG

Vorsitzende der Spitaldirektion
UniversitätsSpital Zürich

Credits und Dank

Credits

Schweizerische Gesellschaft für Innere Medizin, SGIM, 3.5 Credits

Schweizerische Gesellschaft für Nephrologie, SGN, 4 Credits

Schweizerische Gesellschaft für Gastroenterologie, SGGH, 2.5 Credits

Schweizerische Gesellschaft für Chirurgie, SGC, 4 Credits

Schweizerische Gesellschaft für Anästhesie und Reanimation, SGAR, 4 Credits

Schweizerische Gesellschaft für Intensivmedizin, SGI, 4 Credits

Schweizerische Gesellschaft für Kardiologie, SGK, 3 Credits

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Schweizerische Gesellschaft für Dermatologie, SGDV, 4 Credits

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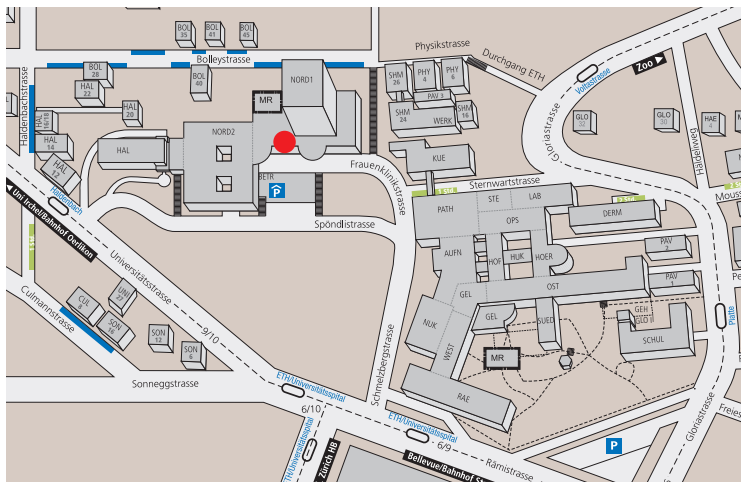
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Katharina Enggist
Telefon +41 44 255 14 79
katharina.enggist@usz.ch
www.transplantation.usz.ch

Anmeldung

Bitte senden Sie uns Ihre Anmeldung
bis Montag, 10. November 2014 an:
katharina.enggist@usz.ch

Veranstaltungsort

UniversitätsSpital Zürich
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Frauenklinikstrasse 10
8091 Zürich



UniversitätsSpital
Zürich



Datum	Topic	Thema	Referent	Affiliation	Host
24.02.2014	STCS	Kohorte: Was können die Daten der STCS leisten?	Michael Koller	Klinische Epidemiologie, Universitätsspital Basel	N. Müller
31.03.2014	Herz	Ex-vivo machine perfusion for recovery of hearts from donors after circulatory death	Herman Tolboom	Klinik für Herz- und Gefässchirurgie, Universitätsspital Zürich	Markus Wilhelm
14.04.2014	Inselzellen	Langzeitdaten am USZ	Philipp Gerber	Klinik für Endokrinologie, Diabetologie + Klinische Ernährung, Universitätsspital Zürich	Roger Lehmann
26.05.2014	Leber	Platelets in liver transplantation	Mickael Lesurtel	Klinik für Viszeral- und Transplantationschirurgie Universitätsspital Zürich	Philipp Dutkowski
30.06.2014	Stammzellen	Paneth cells, the microbioma and gastrointestinal graft versus host disease	Ernst Holler	Allogene Transplantation, Universitätsklinikum Regensburg	Urs Schanz
25.08.2014	Lunge	How to deal with donor organ shortage: Utilization of DCD donors in lung transplantation	Ilhan Inci	Klinik für Thoraxchirurgie, Universitätsspital Zürich	Sven Hillinger
29.09.2014 im Grossen Hörsaal Ost bis 19.00 h	Niere	Biomarker-basierte Individualisierung der Therapie Individualisierte Immunsuppression bei Virusinfektionen Diskussion von vier Kasuistiken	Prof. Dr. Petra Reinke / Prof. Dr. Hans-Dieter Volk	beide Charité, Universitätsmedizin Berlin	T. Müller/ N. Müller
27.10.2014	Composite tissue	Immunological Challenges and Outcomes in Hand- und Facetransplantation	Pr. Emmanuel Morelan	Université de Lyon	J. Plock /N. Müller
24.11.2014	Dermatologie	From mice to men: Basic science models for skin cancer under immunosuppression	F.R. de Gruijl	Dept. of Dermatology, Leiden University Medical Center, Leiden NL	G. Hofbauer

UniversitätsSpital Zürich  **Transplantationszentrum**

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Prof. Roger Lehmann
Prof. Nicolas Müller
PD Dr. Urs Schanz
Prof. Dr. Thomas Müller

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