

# Recipients

Version 2.0 — February 2026



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## 1.0

### Introduction

The transplantation of solid organs is now an established treatment option for patients with advanced heart, liver, lung, pancreas, or kidney disease, for example, for whom there is no other long-term alternative medical or surgical treatment option.

Organ transplantation is subject to strict legal requirements, which are regulated nationally in the transplantation law [1] and the corresponding ordinances [2]. In addition to the availability of sufficient donor organs of appropriate quality, the prerequisites for long-term successful organ transplantation are the careful selection of potential candidates for organ transplantation and long-term care of transplant patients by interdisciplinary teams with experience in the transplantation medicine of specific organs.

In 2024, 637 solid organ transplants were performed in Switzerland. The most common were kidney transplants (395), followed by liver transplants (133), lung (63) and heart transplants (47), as well as pancreas transplants (13) [3]. These organ transplants are performed in the six Swiss transplant centers in Basel, Bern, Geneva, Lausanne, St. Gallen, and Zurich, a service mandate under the Intercantonal Agreement on Highly Specialized Medicine (IVHSM) in Switzerland.

However, organ transplantation not only aims to prolong life, but also to improve the quality of life of the organ recipient. In addition to appropriate follow-up care by teams experienced in transplant medicine, organ transplantation also has a lasting impact on the lives of patients and their families, including their everyday lives. These aspects, among others, will be discussed in detail below.

## 2.0

### Outcomes following solid organ transplantation

Today, solid organ transplantation is a widely accepted treatment performed on thousands of patients worldwide. Fortunately, the outcomes following organ transplantation have greatly improved since its early days in the last century. As a result, patients who are carefully selected for organ transplantation not only live longer in general but also enjoy a better day-to-day quality of life. All patients who have received organ transplants have been included prospectively in the 'Swiss Transplant Cohort Study' (STCS) since 2008 – provided they have given their consent. Collecting this data in a national registry serves the purpose of quality control and verification of results in order to compare them with international results after organ transplantation, among other things.

The STCS annual report from 2025 [4] includes all patients who received organ transplantation between May 1, 2008, and December 31, 2024. Single as well as multiple organ transplantations (e.g., combined liver-kidney transplants) were included in the report. In addition to the first organ transplantation, any re-transplantation (e.g., a second kidney transplant after organ failure of the first transplanted kidney), as well as secondary organ transplantations (e.g., a kidney transplantation following previous heart transplantation), were included as well.

According to the STCS Annual Report 2025, a total of 8,583 patients were included after organ transplantation, 96.5% of whom had received a single organ transplant; 91% of patients had received a first organ transplant. 8% of registered patients had received a re-transplant. Of the 4,937 registered kidney transplant patients, 87% had a first organ transplant and 12% had a re-kidney transplant. Re-transplants are rather rare among recipients of heart, liver, or lung transplants. Of the 295 registered double organ recipients, the majority received a combined kidney-pancreas transplant (58%).

The median patient age was 55 years, just under 65% of all patients were men, and only 4.6% were pediatric patients. The survival probability of the patient cohort across all organs is 95% after one year and 74% after ten years (see Fig. 1). However, there are significant differences depending on the organ transplanted (see Fig. 2).

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**Swiss Transplant Cohort Study – Annual Reports**

<https://www.stcs.ch/publications>



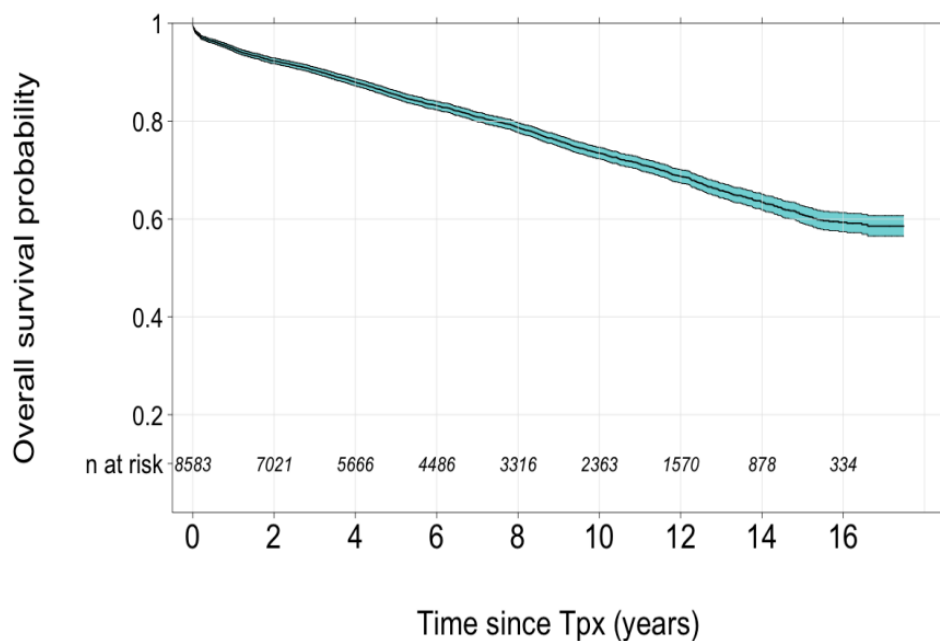


Figure1 : Overall survival rate (STCS, 2025)

Swiss Donation Pathway

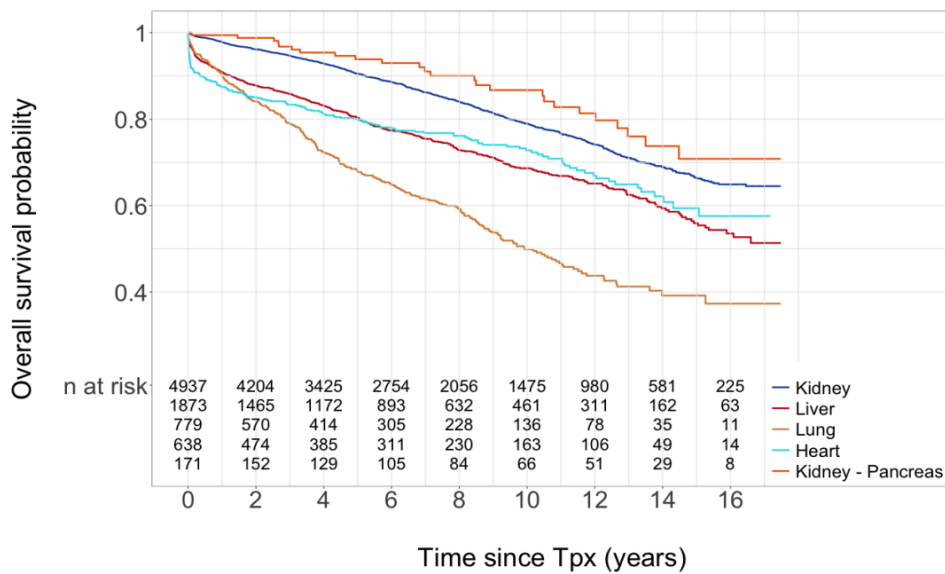


Figure2 : Survival rate by organ (STCS, 2025)

## 3.0

### Immunosuppression after transplantation

To ensure sufficient organ function following transplantation, immunosuppressants must usually be taken for the rest of the patient's life to prevent the body from rejecting the transplanted organ. What is important here is that the patient regularly takes the immunosuppressants at the prescribed times of day to ensure effective immunosuppression and to prevent or minimize possible side effects.

As a rule, the goal is to keep the number of medications taken following transplantation as low as possible. Doses of medication should not be missed, and any side effects caused by the medications should be immediately discussed with the transplant team. To ensure that you are able to take the drugs at regular times as required, it is advised to carry the next dose on you when you leave the house. Taking anti-inflammatory drugs (non-steroidal anti-inflammatory drugs, such as Brufen®, Voltaren®, Algifor®, etc.) is not recommended and must first be discussed with the transplant surgeon. Due to possible interactions between medications, including those of plant origin (so-called phytopharmaceuticals such as St. John's wort), changes to medication must be discussed in detail with a physician experienced in transplant medicine or with the attending transplant team.

Immunosuppressants interact with the human immune system in different ways to prevent the body from rejecting a transplanted organ. Because of this mechanism, the most common side effect of immunosuppression is increased susceptibility to infection, meaning the patient is at greater risk for bacterial as well as viral and fungal infections. Immunosuppression generally involves taking a combination of various medications to improve effectiveness and reduce side effects. The treatment is modulated for the individual patient and, among other things, depends on the transplanted organ as well as the amount of time that has passed since transplantation.

Polyclonal antibodies (e.g., ATG Thymoglobulin® or Grafalon®) or monoclonal antibodies (e.g., Basiliximab Simulect®) are generally used for induction therapy at the start of transplantation.

For maintenance therapy, calcineurin inhibitors (CNIs), in particular, are regularly used after transplantation. This category includes the active ingredients cyclosporine A (e.g.: Sandimmun Neoral®) and tacrolimus (e.g., Prograf®, Advagraf®, Envarsus®). The concentration of CNIs in the blood is the decisive factor for their effectiveness. The ideal levels in the blood are determined individually and adjusted over time as needed. Depending on the results from these ideal blood level measurements, the CNI dose may be adjusted by the transplant team. The most common CNI side effects include increased blood pressure and reduced kidney function as well as shaky hands, burning sensations in the hands and feet and increased body hair growth (especially with cyclosporine A) and hair loss (with tacrolimus). Today, tacrolimus is the CNI used in most cases following solid organ transplantation.

Another immunosuppressive agent is mycophenolate mofetil (Cellcept® or Myfortic®). Its most common side effects include nausea, diarrhoea, gastrointestinal problems, skin changes (wearing adequate sun protection is strongly recommended), and a decrease in white blood cell production, making the patient more susceptible to infection. Over

the last 10 years, mycophenolate mofetil has almost completely replaced azathioprine (Imurek)<sup>®</sup>.

Another commonly prescribed drug, at least temporarily, following organ transplantation is cortisone, which is actually a hormone produced by the human body that affects the human immune system in different ways. Cortisone is sometimes also administered in higher doses temporarily if an acute rejection reaction occurs following solid organ transplantation. Possible side effects of cortisone may include water retention in tissue (oedema), increased appetite, weight gain, so-called "moon face", sleep disorders, irritability and/or nervousness, increased blood sugar, wound healing disorders, and, in the case of long-term use, increased brittleness of the bones (osteoporosis).

Other immunosuppressants, such as mTOR inhibitors (Rapamune<sup>®</sup> or Certican<sup>®</sup>) or betalcept (Nulojix<sup>®</sup>), are available and can be used in specific cases in combination with or instead of the drugs just mentioned. In recent years, new substances have been used specifically for the treatment of antibody-mediated rejection, such as felzartamab, daratumumab, bortezomib, rituximab, or C1 esterase inhibitors. Some of these therapies require special vaccination and/or serostatus for viruses, which must be checked in each individual case.

It should always be noted that immunosuppressants reduce the body's inflammatory response, and that typical symptoms of a disease (e.g., redness, pain, fever) may be much less severe while taking them.

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To ensure the adequate functioning of a transplanted organ, lifelong immunosuppression is generally required, which must be taken according to medical instructions. Any changes to medication **must** be discussed with the attending transplant medicine physician in order to prevent the occurrence of undesirable side effects or transplant rejection.

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For optimal adherence, it is important to establish a good therapeutic relationship with transplant recipients from the beginning.

## 4.0

# Infection prevention and vaccinations

## 4.1 Infection prevention after transplantation

As previously explained, immunosuppression is necessary after organ transplantation in order to prevent transplant rejection. However, immunosuppression increases the organ transplant patient's susceptibility to infection. For this reason, prevention (prophylaxis) against bacterial as well as viral and fungal infections after solid organ transplantation is an important part of patient management [5, 6, 7]. This includes medications prescribed to prevent infection as well as general and specific vaccination recommendations for the transplant patient and general best practices and precautions for everyday life.

For example, antibiotics are sometimes used prophylactically during dental procedures under immunosuppression, depending on the doctor's prescription. However, antibiotics are also sometimes administered early in cases of infection, such as respiratory or urinary tract infections, depending on the organ transplant and the intensity of immunosuppression. The choice of antibiotics and duration of treatment is up to the transplant medicine physician. A different course of antibiotic treatment and treatment modality than what would be advised for a patient who has not received an organ transplant may be selected.

The antibiotic combination of trimethoprim and sulfamethoxazole (Bactrim®, Nopil®) is often taken by patients following transplantation – sometimes for the rest of their lives – to prevent pneumocystis pneumonia, an opportunistic infection caused by the pathogen pneumocystis jirovecii.

For prophylaxis against cytomegalovirus (CMV), the antiviral drugs valganciclovir (Valcyte®) or letermovir (Prevymis®) are prescribed, sometimes preemptively, depending on the recipient/donor CMV status and the general immunity of the recipient [8]. In most healthy people, a CMV infection usually has no or only minor symptoms of the disease. However, after transplantation with immunosuppression, a CMV reinfection or CMV reactivation can cause serious complications, such as CMV colitis (colon inflammation) or CMV pneumonia.

Antiviral drugs are also used in patients after organ transplantation for so called community acquired respiratory viral infections (CARVs), for example oseltamivir (Tamiflu®) for treatment but also for prophylaxis after exposure to the seasonal flu virus. Research into and the use of antiviral therapies has received a real boost from the SARS-CoV 2 pandemic, with substances such as remdesivir and nirmatrelvir-ritonavir now being investigated.

Fungal infections are another possible complication that occur in organ-transplant patients taking immunosuppressants. Depending on the type of organ transplantation, amphotericin B (Ampho-Moronal®) is prescribed prophylactically or to treat fungal diseases (yeasts and moulds) of the (oral) mucous membranes, oesophagus and intestine. Other antimycotics (antifungal drugs) belong to the group of azoles, which are used prophylactically and to treat systemic mycosis. These include itraconazole (Sporanox®), posaconazole (Noxafil®) and voriconazole (VFEND®), for example. The concomitant use

of azoles and CNIs is known to cause interactions affecting CNI blood levels, meaning that azoles should only be taken when prescribed by the transplant medicine doctor. Careful CNI blood level monitoring is indicated to prevent undesirable side effects.

Adequate infection prevention also includes good bodily hygiene, meaning regular hand washing as well as good oral and dental hygiene, along with annual visits to the dentist. During flu season in winter, it is recommended to avoid attending large gatherings and being around sick individuals. Wash your hands thoroughly after any contact with pets. Wear gloves and a mask when cleaning cat litter boxes or bird cages. Injuries such as bites and scratches must be disinfected and a plaster must be applied. Check the wound regularly for signs of infection.

Tattoos and piercings are not recommended due to the risk of infection and, if done at all, should only be performed under strict hygienic conditions.

The topic of vaccinations and vaccination recommendations as "infection prophylaxis" will be discussed in detail in the next chapter.

## 4.2 Vaccinations and vaccination recommendations

Due to the lifelong immunosuppression usually required by organ transplant patients, they are more vulnerable to infectious diseases. Here it is important to carefully document the vaccination status of patients **before** placing them on any transplant lists. This is to protect against infectious diseases that are preventable through vaccination, such as varicella (chickenpox) and measles. As a rule, **before** being added to a transplant list, patients should be vaccinated according to the latest version of the Swiss vaccination schedule found on the website of the Federal Office of Public Health (FOPH).

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**Federal Office of Public Health – Swiss vaccination schedule**

<https://www.foph.admin.ch/de/schweizerischer-impfplan>




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Missed vaccinations (primary immunizations, booster vaccinations and supplemental vaccinations for at-risk groups, including hepatitis B) are to be given promptly and documented in the vaccination record or online.

Nevertheless, a life-saving transplantation of vital organs should not be delayed due to incomplete vaccination status. A fast-track vaccination schedule for persons before they receive a solid organ transplant is available on the FOPH website. The information includes the mandatory minimum intervals in months.

**After** transplantation, the patient's existing vaccine protection is to be recorded and selectively recommended vaccinations are to be given later. The vaccination recommendations issued by the Federal Office of Public Health (FOPH) and the Federal Commission for Vaccination Issues (EKIF) are authoritative in this regard.

It should be noted that a limited immune response in the transplant patient can be expected due to the immunosuppression required after transplantation. Here, the vaccination information documented before transplantation is important. Adequate

vaccine protection may need to be tested with antibody tests. During the first 3–6 months following transplantation, primary and supplementary vaccinations are usually not recommended due to diminished immunocompetence and vaccine response. However, this should be decided on a case-by-case basis; for example, the inactivated influenza vaccine may be given earlier during a flu epidemic. The seasonal flu vaccine is indicated once a year for high-risk patients.

Even as time passes after transplantation, the immunocompetence and vaccine response is usually still compromised, meaning missed vaccinations and booster vaccinations are to be given in addition to the annual seasonal influenza vaccination and pneumococcal vaccination (with the 13-valent or 20-valent pneumococcal conjugate vaccine, Prevenar13®/Prevenar20®). Basic and annual booster vaccinations against SARS-CoV-2 are also urgently indicated. Despite immunosuppression and the resulting reduced vaccine response, patients develop an immune response after solid organ transplantation. In general, the use of live vaccines is **not** permitted after transplantation.

It is generally recommended to check the vaccination status of all household contacts against the Swiss vaccination schedule and to close any vaccination gaps, including the annual vaccination against seasonal influenza.

Because today's transplant patients tend to enjoy traveling, this also raises the question of which vaccinations are required when traveling to certain regions. The centres for travel medicine should be consulted in such cases. They offer special appointments to advise patients on their individual travel plans. It is imperative that patients disclose the status of their organ transplantation and current immunosuppressive therapy to the vaccination adviser at the travel medicine centre and discuss these vaccination recommendations with the attending transplant medicine specialist. A yellow fever vaccination after organ transplantation is contraindicated.

Vaccination against tick-borne meningoencephalitis (TBE) is recommended in Switzerland. As for human papilloma virus (HPV), it may call for a vaccination before and, in some situations, even after the person has become sexually active. Vaccination against varicella/shingles is also recommended for immunosuppressed patients, as there is now an inactivated vaccine (Shingrix®).

Overall, global experience, particularly during the SARS-CoV-2 pandemic, has shown that vaccinations are safe and useful even for transplant recipients and, in particular, do not increase the risk of rejection [9].

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Vaccinations are an important aspect of organ transplantation and should be checked before transplantation and completed if necessary. Live vaccines are **not** allowed for people taking immunosuppressants. The seasonal flu vaccination is essential for transplant patients and those around them.

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## 5.0

### Complications following transplantation

Life after solid organ transplantation is usually only possible if the person takes immunosuppressants for the rest of their life. This is because the human body recognizes the transplanted organ as foreign, and the immunoreaction triggered by the body would lead to an organ rejection. Immunosuppression keeps this process in check so that the transplanted organ remains functional.

What are known as T-cells, which belong to the category of white blood cells (leukocytes), play a key role in the body's immune defences. Receptors that recognize foreign substances (antigens), such as the tissue characteristics of foreign cells, are responsible for binding antigens to T-cells. In addition, the T-cell receives other signals, known as secondary signals, from the foreign tissue via other receptors, causing T-cell activation. The T-cell then produces signalling substances that tell other immune cells to attack the foreign cells.

Cellular rejection of transplanted organs has been known for a long time, but an antibody-based immune response also plays a role, which until a few years ago was hardly given any attention. Today, however, we know that humoral immunoreaction in transplant medicine plays just as much of a role. Immunosuppression counteracts this cellular and humoral activation through various mechanisms.

A distinction is generally made between an acute and chronic rejection. This failure of the transplanted organ can occur at any time after organ transplantation.

The risk of acute transplant rejection is highest during the first year following transplantation. Today, acute transplant rejection is rather unusual thanks to the use of effective immunosuppression, provided that the patient diligently and regularly takes their medications as prescribed by their physician. Through frequent testing and monitoring of the patient, the goal is to prevent an acute transplant rejection, or at least identify it at an early stage and treat it immediately by temporarily increasing the dose of immunosuppressants, while also avoiding excessive immunosuppression.

Transplant function is checked differently depending on the organ. As a rule, this includes laboratory tests, imaging, and even invasive diagnostics with tissue sampling, as well as some organ-specific examinations such as lung function measurement after lung transplantation. However, it is also important for patients to take regular self-measurements and cooperate closely with the transplant team. This includes monitoring at home with blood pressure and temperature measurements as well as weight determination.

Chronic rejection usually develops only after the first year following transplantation and results in chronic transplant failure (CTF) with sustained loss of function [10, 11]. Chronic rejection remains the Achilles' heel of transplantation for all solid organs, and unfortunately it is still not adequately understood. There are many similarities between various solid organs with respect to chronic rejection, but there are also various differences. The details go beyond the brief scope of this chapter, however.

A case of chronic transplant rejection in heart transplant patients results in what is called transplant vasculopathy. A total of 50% of heart transplant patients develop transplant vasculopathy ten years after transplantation. Chronic rejection following lung transplantation is now described using the generic term chronic lung allograft dysfunction (CLAD). The most common form is the clinical picture of bronchiolitis obliterans syndrome (BOS), in which complex multifactorial processes ultimately lead to the closure of the small airways due to connective tissue remodeling, which is clinically diagnosed on the basis of permanent loss of lung function. Five years after transplantation, nearly 50% of all living lung-transplant patients develop CLAD. The treatment options are limited and may involve what is known as immunomodulation with the macrolide antibiotic azithromycin (Zithromax®), additional procedures such as extra-corporal photopheresis (ECP) or total lymphocytic irradiation (TLI). Fortunately, chronic rejection following liver transplantation is less common now than it was in the past. With CNI immunosuppression, the current prevalence is 5 – 15%, and less than 5% of all cases of organ loss after liver transplantation can be attributed to chronic rejection. Chronic rejection after kidney transplantation is caused by immunological and non-immunological factors that cause remodeling processes, especially in the area of the transplant vessels.

Early detection is important in order to be able to offer patients an individualized treatment plan and, at least, prevent the progression of chronic rejection. While there is still no effective treatment for chronic rejection in all organs, significant progress has been made in the department of controlling the immune response to the transplant, particularly through the measurement of donor-specific antibodies (DSA), cell-free DNA (cfDNA), and gene expression in blood and tissue after a biopsy.

In the case of progressive chronic rejection with increasing loss of function of the transplanted organ, re-transplantation is the ultimate treatment option.

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Because the development of chronic rejection with CTF after solid organ transplantation is still always the limiting factor for long-term survival and treatment options are unfortunately limited, the early detection and treatment of any possibly controllable risk factors is especially important.

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Achieving the ideal immunosuppression after solid organ transplantation is often a difficult balance for each individual patient. Simply said, "as much as necessary, as little as possible". The goal of immunosuppression is to prevent rejection of the transplanted organ. On the other hand, excessive immunosuppression has the undesirable side effect of greater susceptibility to infection. Today, attempts are usually made to adjust immunosuppression to the individual, depending on the type of transplant, the clinical progression following transplantation, the frequency and severity of acute rejection reactions, the patient's age etc. There is no "one fits all" approach to immunosuppression.

Consequently, the lifelong use of immunosuppressants can lead to the development of side effects of varying severity. One particularly serious effect of immunosuppression is an increased risk for certain types of **cancer**, for example **skin cancer, cervical cancer and lymph node cancer**. The precise underlying mechanisms between immunosuppression and tumorigenesis are not yet fully understood. However, it is known that the human immune system is in principle capable of recognizing and fighting degenerated cells, but this mechanism is limited under immunosuppression, so that degenerated cells are more likely to multiply and cancer can develop. In addition, the increased infection rate, especially of viral infections, is also a possible cause of the increased incidence of tumor development.

Of the 8,583 patients whose data were analyzed in the STCS Annual Report 2025 [4], 12% developed some form of cancer (excluding skin cancer) and almost 16% developed skin cancer (median approximately five years after transplantation) during the observation period. The most common type of cancer after organ transplantation is generally non-melanoma skin cancer, the risk of which can be significantly reduced by the adequate use of sun protection (hat, clothing, sunscreen with SPF 50) and avoidance of sun exposure. Individual skin type and cumulative sun exposure of the skin since birth, not just in the years following transplantation, also play a major role. Patients are advised to regularly examine their skin themselves and see a dermatologist at least once a year for a full-body examination.

Other common side effects of immunosuppression include the development of **high blood pressure**, which should be monitored regularly and can be positively influenced by eating less salty foods. **Fat metabolism disorders** (high cholesterol) are also known side effects. Overall, however, these complications must also be seen in relation to the unchanged significantly increased susceptibility to disease and reduced life expectancy associated with dialysis. Transplantation offers a survival advantage for all organs.

## 6.0

### Everyday life, sports, sexuality, travel

#### 6.1 Everyday life and work

Depending on the type of organ transplantation, patients can be discharged from hospital and return home a several days or weeks after transplantation or after a subsequent stay in a rehabilitation clinic. They will then begin to readjust to home life with new guidelines for patients as well as their families and close contacts. Nurse specialists, physicians and other health professionals will provide patients with detailed information for this phase, including specific bulletins, information brochures and patient training sessions.

Organ transplant patients remain under close medical observation, either directly at the transplant centre or in the care of an experienced physician specializing in transplant medicine who will work with the transplant centre in various ways. It is necessary to closely monitor the transplanted organ and its function, including looking for any side effects caused by immunosuppression, which the patient will usually take for the rest of their lives. In general, an all-around healthy lifestyle is recommended.

Medical check-ups are more frequent in the first few weeks and generally in the first year after transplantation. The more time that has passed since the patient's transplantation, the fewer check-up appointments will be needed at the transplant centre unless a chronic rejection reaction with CTF or other medical problems occur. The attending transplant team includes doctors experienced in transplant medicine as well as specialized nurse specialists. Depending on the transplanted organ, follow-up examinations (surveillance) are carried out to varying degrees, some of which also require invasive examination. A tissue sample is taken, for example, from the transplanted heart (endomyocardial biopsy), the transplanted lung (transbronchial biopsy), or the transplanted kidney (ultrasound-guided kidney transplant biopsy) so that the pathologist can in particular rule out a rejection reaction of the transplant. These surveillance examinations help to control immunosuppression for the individual patient.

Depending on the transplanted organ, patients are also instructed to monitor their own health status from home (patient self-management) and communicate any changes to the attending physician or transplant team. Sometimes, as part of self-management at home, patients also perform instrumental examinations themselves, ranging from blood pressure measurements, which may be indicated, to daily lung function measurements using a handheld microspirometer. The measurements taken must be documented by the patient themselves and discussed at the medical check-up. These values can be documented in either a diary or, as is common among younger patients, a specially developed smartphone app. If the patient notices any deviations in the values they have measured themselves, they are required to report this to the treatment team immediately. The electronic patient dossier can facilitate the exchange of information between the various specialists. In addition, patients are educated about regularly taking medication as well as any side effects of medication and possible symptoms of illness they should look for in particular (nausea, vomiting, diarrhoea or constipation; headache, sore throat and joint pain; cold symptoms; red, swollen or painful areas on the body; skin changes; fever). If the patient is experiencing these symptoms, they should not wait until their next examination and should immediately contact the transplant centre

or their specialist. At many transplant centres, patients can practice taking their medication before leaving the hospital.

Patients usually also receive nutritional advice about a well-balanced, moderate diet with plenty of daily variety as well as interactions between certain foods and medications. One typical example is grapefruit juice, which should not be consumed when taking immunosuppressants. Transplant patients should always ensure appropriate food hygiene when selecting and preparing foods. Excessive alcohol consumption should be avoided.

Fundamentally, the goal of organ transplantation is not only to prolong the patient's life but also to improve their quality of everyday life. This also includes starting or resuming work following transplantation. The (re)integration into working life is generally encouraged; regular or even part-time work gives structure to a person's daily routine and fosters social contacts outside of a person's own household and circle of friends and family. Starting work should be discussed with the attending physician. The transplant teams will advise patients and also bring in social workers if needed. Additional assistance is offered in navigating regulations relating to invalidity insurance. In some cases, such as after lung transplantation, it is also advisable to discuss the choice of work with the attending physician.

The time on the waiting list, the hospital stay and the return to everyday life can cause questions and worries to arise. For certain patients, psychological help may be necessary.

## 6.2 Sport and sexuality

As a rule, plenty of exercise and participation in sports are a rewarding goal after a successful solid organ transplantation. However, athletic activities must be adjusted to the person's individual health status and fitness level. The goal is to strengthen muscles and improve endurance. It is important for patients to begin mobilisation exercises soon after transplantation as directed by their physician and to resume with their daily physical activities in a timely manner. After transplantation, certain patients will remain very limited, and a stay at a rehabilitation clinic is advisable after consulting with the transplant team.

Depending on the type of transplantation, certain sports, such as contact sports and martial arts, are to be avoided for the first three months after transplantation. Ideally, no loads over 2.5 kg should be lifted during the first six weeks and no loads over 5 kg in the first 3 months either. We recommend consulting the transplant team about this. Endurance sports like jogging or cycling are particularly suitable for many patients. For the first 3 months after the transplantation, patients are recommended not to take exercise beyond using a stationary bike at home with low resistance. At some centres, lung transplant patients are advised to avoid swimming for the first few months after transplantation and then generally to swim in natural bodies of water. Here, too, it is advisable to consult with the transplant team.

Sports are also popular among organ-transplant patients and not only have a positive impact on both the body and the mind. Most people who exercise regularly feel more balanced and emotionally resilient. Physical activity helps to better manage the stresses of everyday life.

Depending on the type of organ transplantation, medical training therapy (MTT) is often already started at the transplant centres under the professional direction of physiotherapists. It involves targeted strength, endurance, mobility and coordination training of the patient's musculoskeletal system and cardiovascular system. MTT has a primarily medical focus, meaning that it is not fitness training in the conventional sense. MTT combines exercise and training principles with the insights from the field of pathology. In other words, regular MTT supports the rehabilitation process following organ transplantation. Through targeted training in the areas of endurance, mobility, coordination and strength, the goal is to improve resilience of the musculoskeletal system and cardiovascular system and thus improve performance in the patient's everyday work and leisure time. MTT is prescribed by a physician, which means patients are advised to talk to their attending transplant medicine physician.

In general, persons can engage in sexual activity again after transplantation. This is important, because a fulfilling love life is generally conducive to overall satisfaction in life. Patients who are waiting for an organ transplant must often put up with problems in their sex lives due to their constant poor health condition. Many transplant patients are able to regain a normal sex life, however. Certain medications (e.g., drugs used to lower blood pressure) may affect the person's sexual activity (erectile dysfunction, low libido). If the patient is non-monogamous, it is important for them to prevent sexually transmitted diseases, for example, by using barrier protection (condoms). Reliable contraception after transplantation should be discussed with an experienced gynaecologist. As a rule, transplant patients do not have to give up on having their own children. Female organ transplant patients should **always** discuss any plans to have children with the transplant team and an experienced gynaecologist at an **early stage**. Some medications (e.g., mycophenolate mofetil CellCept) are dangerous for pregnant women and their unborn children and must be discontinued or changed before pregnancy. Pregnancy should be avoided in the first year after transplantation due to intensive immunosuppression. The possible risks associated with pregnancy (increased risk of infection, adjusting immunosuppression, increased risk of foetal deformities, risk of expulsion, prematurity) should ideally be discussed fully before conception. Men who have received organ transplants should also consult with the transplant team before conceiving children.

## 6.3 Travel after transplantation

With good preparation, it is generally possible and even desirable to travel again after a transplant, with certain limitations. Before traveling it is crucial that the transplant patient is in good health and that the transplanted organ is stable and functioning. In general, these criteria are met a year after transplantation. It is always advisable to discuss the desired travel plans with the attending physician or transplant team in due time, ideally three months before the planned trip.

### Before traveling

Basically, it is important for transplant patients to select an appropriate travel destination (climate, standard of hygiene). When planning to travel by plane, it may be necessary for a physician to assess the patient's fitness to fly. The completeness of travel documents, travel cancellation insurance, and arrangements for return travel in case of an emergency need to be clarified in detail. Travel documents from the transplant centre should ideally be in English. Taking medications (immunosuppressants) in relation to time zone changes and medication reserves need to be discussed at an early stage with the transplant team, which will be glad to advise the patient. It is also important to

discuss any additional vaccinations that may be required (see also chapter 4.2). It is advisable to complete the "Before traveling" checklist (see Appendix 1).

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Travel after transplantation requires detailed planning and good preparation, which should generally begin three months before departure, especially for long-distance travel. The attending physician should be consulted or the transplant team notified in due time. Travel medicine centres offer additional advice in specific matters relating to the destination.

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## 6.4 Quality of life after transplantation

As already discussed several times, the goal of organ transplantation is not only to prolong life but, just as importantly, to improve quality of life, which is greatly diminished for patients for however long they have been waiting for a donor organ. After organ transplantation, people want to get back to their normal lives, whatever that happens to mean for the individual. Just like people who have not received organ transplantation, transplant patients also want to spend their time on the things in life that are important to them without being physically limited: partners, family, friends, work colleagues, social contacts and leading an independent, **self-determined life**. Transplant recipients often speak of a "second life" made possible by the transplant. They want to live mindfully, often more so and with greater self-awareness than before their transplantation.

After transplantation, people do not, of course, live fully free. They require regular medical examinations, must painstakingly take their (immunosuppressive) medications every day, may develop medical complications due to taking immunosuppressants, and live in fear that their own body may one day reject their new transplanted organ. Despite these limitations and some of these fears as well, most people feel better after than before transplantation. Many say they would opt for transplantation again and do not regret their original decision to receive transplant surgery. Scientific studies confirm this attitude towards transplantation [12].

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Transplant patients usually experience a **higher** quality of life after organ transplantation, and the **positive attitude** affects many different aspects of everyday life: physical performance, emotional well-being, mental fitness and social life.

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The overall positive attitude of transplant patients towards organ transplantation has also been documented scientifically in Switzerland, including in a national Swiss study. [13]. The study confirmed the generally positive attitude of the respondents towards transplantation as well as towards taking their medication and how they saw themselves. However, both patients and their life partners reported negative opinions about transplantation in terms of stress and anxiety. Patients described increased emotional stress brought on by the organ transplantation and described how they perceived their fate as more negative than did their life partners. For this reason, the perceptions of transplant patients and their life partners surrounding organ transplantation must be taken into consideration.

As described previously in detail, quality of life includes aspects of a person's normal, everyday life after transplantation, meaning a successful (re)integration into work life, plenty of exercise and sports that are enjoyable, a fulfilling sex life, and the opportunity to travel safely after transplantation.

Finally, many readers wonder what thoughts are going through the mind of a person who is waiting with big hopes for a donor organ. What is the background behind the transplant? And what is life after organ transplantation like? People's lives – even after organ transplantation – have all kinds of stories to tell that are as rich and varied as life itself. Stories of organ transplantation patients can be found on the Swisstransplant website in the form of mini-documentaries.

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**Stories of organ transplant recipients (mini-documentaries)**

<https://www.swisstransplant.org/de/infocenter/videoplattform>



## 7.0

### Thank-you letters

Thank-you letters are a valuable opportunity for organ recipients to express their gratitude to the donor's relatives for the organ they have received. For the donor's family, in turn, it can have a positive effect in helping them to process their grief and confirm their decision to donate organs.

The decision to write a thank-you letter is entirely yours. You also decide when to send it. You can send a thank-you letter a few weeks after the transplant, or years or even decades later. To ensure that no conclusions can be drawn about your identity and that the anonymity of the organ donation is guaranteed, the letters are checked before being delivered to the donor's relatives. Thank-you letters are also translated if necessary.

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Detailed information on writing and sending letters can be found in the brochure "Dank-esbrief: Ein kleiner Brief mit grosser Wirkung".

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## Changes

Date	Version	Changes
February 2026	2.0	<p>Entire Module:</p> <ul style="list-style-type: none"> <li>- Changes/corrections to improve readability.</li> <li>- New chapter structure introduced, with the "Foreword" chapter removed.</li> <li>- References revised and updated.</li> </ul> <p>Chapter 2.0 "Results after solid organ transplantation": Updated with the latest figures available from the annual reports of Swisstransplant and STCS.</p> <p>Chapter 3.0 "Immunosuppression after transplantation": Induction therapy newly added.</p> <p>Chapter 4.2 "Vaccinations and vaccination recommendations": Vaccination against varicella/shingles newly added.</p> <p>Chapter 7.0 "Thank-you letters" added.</p>
February 2023	1.1	Correction
December 2020	1.0	Initial version

## Appendix 1: Checklist "Before traveling"

### Destination

- Timely consultation with transplant specialist (3 months ahead)
- Appointments for routine examination
- Travel advice at centre for travel medicine (optional depending on the country of travel)
- Appointment with your doctor for post-trip examination

### Insurance policies

- Adequate insurance protection for international travel (health insurance, cancellation insurance)
- Insurance for return transport in an emergency

### Travel documents and medical documents

- Valid passport, visa (if necessary)
- Customs letter: Certificate of carriage for all medications
- Patient passport with important contact details for your wallet
- Diagnosis list (in English) / current laboratory results
- Medication plan
- Doctor's prescription
- Current international immunization card
- Allergy card
- Medical contacts in the destination country (24-hour service)
- Copies of all personal documents (travel tickets, passport, health insurance, insurance documents, credit cards, etc.) and current medical documents.

### Long-term medication

- Note time differences – find out from your transplant specialist if you need to consider the time difference when taking your medications
- Transport of long-term medications: Enough for at least 7 days in carry-on luggage, rest in the suitcase (For flights longer than four hours, medications should be transported in hand luggage, as the luggage compartment is too cold. If possible, divide medications up between several items of luggage (accompanying person)).

### Travel and emergency first-aid kit

- Additional medications, emergency medication and travel first-aid kit (in consultation with your doctor)
- Thrombosis prevention (in consultation with your doctor)
- Thermometer
- Condoms

### Vaccinations

- Check vaccination status, booster shots, and infection prevention (in consultation with your doctor) – at least 3 months before departure

### Sun protection

- Sunscreen with a high sun protection factor (SPF 50)
- Head covering and long clothing, ideally protecting against UV
- Sunglasses

### Insect repellent

- Insect repellent for skin and clothing
- Clothing with long sleeves, long pants
- Mosquito netting

### Hygiene

- Hand disinfectant (not more than 100 ml in carry-on baggage)
- Face mask (in consultation with your doctor)

### During traveling

To prepare for risk situations and potential complications during the trip, **before** traveling, transplant patients should talk to the transplant team about what to do if they fall ill / have an emergency, e.g. if they experience diarrhea. Many complications can be avoided by strictly observing hygiene guidelines for food and drinking water. A simple (but reliable) rule of thumb is, "**boil it, cook it, peel it or forget it**". Guidelines for swimming should be followed as well, because immunosuppression makes transplant patients more vulnerable to infections. For example, swimming and diving in tropical freshwater is to be avoided. Swimming in bodies of water that have been officially designated as safe is recommended. Wearing sandals or beach / swimming footwear is recommended to protect feet against injury (broken shells) or infections (fungal infections of the feet, foot warts). As a rule, direct contact with animals should be avoided. Always consult a physician after an animal bite due to the risk of infection. Insect repellent and mosquito netting are to be used.

### After traveling

A post-trip examination at the transplant centre should be made **before** traveling. If new symptoms occur – even several weeks – after returning from the trip, the attending physician should be consulted immediately.

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