SUMMARY

Background: 359 lung transplantations were performed in Germany in 2013. The main goals of lung transplantation are to prolong survival and improve the quality of life. Both of these goals can be reflected in a return to employment. We report the first study of employment after lung transplantation in Germany.

Method: We evaluated the findings of a single-center, questionnaire-based cross-sectional investigation of the social and economic situation of 531 patients (September 2009 to March 2010) and obtained 5-year follow-up data in December 2014.

Results: 38% of the patients were employed after lung transplantation. They took a mean of ten sick days off from work each year; they did not have infections or organ rejection any more frequently than other patients. The five-year follow-up data showed no difference in the overall survival rate of employed and unemployed patients. Employment was associated with a better quality of life (80% [interquartiles: 70%, 95%]) versus 75% [interquartiles: 50%, 85%], p = 0.001). Factors associated with a return to employment included a higher educational level (odds ratio [OR] 2.6, 95% confidence interval [CI] 1.7–4, p = 0.001) and better physical fitness (OR 2, 95%CI 1.3–3.2, p = 0.001).

Conclusion: The rate of return to work after lung transplantation in Germany is similar to the rates observed in other countries. The findings of this study imply that employment improves the quality of life and does not endanger health. Thus, patients who have received lung transplants should be advised to return to work if possible.

Cite this as:

Since the first successful lung transplantation (LTx) was performed in the mid-1980s, the number of such procedures per year has grown steadily. There were 212 lung transplantations in Germany in 2003 and 359 in 2013 (1). Transplant recipients’ quality of life and survival times have improved continually (2, 3). At 5.6 years, the median survival time after lung transplantation is not as long as that after transplantation of other solid organs (data from the International Society for Heart and Lung Transplantation [ISHLT], as of 2014) (4, 5). Infections and organ rejection are the main reasons for this (6).

Return to work is a reflection of successful transplantation and of an improved quality of life. There has been no study to date of lung transplant recipients’ return to work in Germany. In other countries, it has been found that 30 to 37% of patients return to work (6–8). The resumption of work is economically beneficial not just to the patient, but also to society as a whole.

Data from other countries may not apply to Germany because of locally specific aspects of the German healthcare and social systems (including health insurance, nursing-care insurance, unemployment insurance, and pension insurance). In the USA, for example, there is no obligatory health insurance, and access to transplantation is not equal for all.

The goals of this study were to determine the rate of return to employment after lung transplantation and to identify factors influencing the return to employment.

Materials and Methods

Study design

The cross-sectional study included patients who attended the outpatient lung-transplant clinic at the Medizinische Hochschule Hannover from September 2009 to March 2010 for their follow-up care. The central instrument of the study was a questionnaire that all patients were asked to fill out (eQuestionnaire). They were allowed to have help from other family members in filling it out. Patients who had received their transplants less than six months previously were considered separately, as experts in social medicine generally consider that patients should not return to work in the first six months to allow optimal healing. Characteristics of the included patients are seen in Figure 1. All of the patients consented to inclusion in the study by filling out the questionnaire. The study was approved by the local ethics committee (no. 549). 5-year follow-up was carried out in December 2014.
Assessment of employment status

The patients filled out a questionnaire that contained 38 questions on the following topics (eQuestionnaire):

- Current health situation in terms of state of health, physical performance ability, and need for physical aids,
- employment situation before and after transplantation, time of return to work, reasons for returning to work, problems at work, number of working hours per week, number of hours absent from work because of illness, change in quality of life due to work,
- general personal situation, number of episodes of organ rejection, exercise/sports, degree of disability, annotations in handicapped pass, level of education, level of occupational training, family situation, net monthly income,
- quality of life assessed on a visual analog scale from 0 to 100%, with 100% being the best possible (9).

The questionnaire was developed specifically for this study of lung transplant recipients by a team of physicians. A test run was carried out on 5 persons (doctors and clinic staff) and the results were used to improve content and intelligibility. The questionnaire consisted of 26 multiple-choice questions with 2–8 possible answers each, 11 questions with simple numerical answers, and one open question. Filling it out took 15–20 minutes.

Functional parameters

The following functional parameters of the patients were retrieved from hospital records: transplant function, rejection episodes, age, sex, diagnosis leading to transplantation, complications, and type of transplantation (lung transplantation alone or heart-lung transplantation).

Acquisition of follow-up data

5-year survival figures were obtained in December 2014. Data were also obtained on the patients’ quality of life, physical performance ability, and degree of rejection.

Statistical evaluation

Continuous parameters were represented as medians and interquartiles (IQR). Their values in employed vs. unemployed patients were compared with a two-sided Mann-Whitney U test. Categorical variables were compared with a chi-squared test. A multivariate analysis with logistic regression was performed in which the continuous variables were dichotomized with respect to their median values. The dependent variables were:

- Ability to climb stairs (≥2 flights)
- Educational level (completion of high school or higher)
- Employment in the 6 months before LTx
- Family status
- Age over 60
- Need for oxygen supplementation
- More than two episodes of rejection.

Results

During the period of the study, 586 patients were seen in the outpatient lung transplant clinic, of whom 531 (90.6%) agreed to fill out the questionnaire. Of the 476 participating patients who had received their transplants more than six months previously, 150 filled out the questionnaire completely and 326 did not answer one or more questions; the median number of questions omitted was 1 (IQR 0; 3).

Among the 476 participating long-term transplant patients, 179 (37.6%) were employed at the time of the study. The demographic and socio-economic features of the employed and unemployed patients are compared in Tables 1 and 2.

The median time from transplantation to the return to work was 11 months (IQR 6; 15), and the median number of working hours per week was 15 (10; 20). One-quarter of the employed patients said they were working full time. The median number of days absent from work due to illness in the previous year was 10. Of the 179 employed patients, 64 (35%) said they had returned to the same job.
they had before transplantation, 11 (6%) said they had changed occupations, and 3 (1.5%) said they had been re-trained; the remaining 101 patients gave no information in this respect. The patients’ reasons for returning to work and problems experienced at work are shown in Figure 2.

### Employment status, waiting time, and rehabilitative measures before lung transplantation

Before transplantation, 412 patients (88%) were employed, 25 (4.7%) were in job training, and 19 (3.6%) were university students. Of the 412 patients who were employed before transplantation, 158 (38%) returned to work afterward. Of the 58 patients who were not employed before transplantation, 19 (32%) obtained employment afterward. Of those who had been students or in job training before transplantation, 30 (68%) obtained employment afterward. Of the 53 patients who had been working less than six months before transplantation, 40 (68%) returned to work afterward.

The unemployed patients said they were not working because of health problems (40%), inability to find a job (22%), disability payments (16%), or family reasons (6%).

The patients waited a median of 9 months (IQR 3; 21) for their transplants. There was no significant difference in transplant waiting times between employed and unemployed patients, nor did the two groups differ with respect to the urgency of transplantation. 394 patients (76%) had been characterized as “urgent” or “highly urgent” on the transplant waiting list; the remainder had been characterized as normal transplant candidates (“T”).

153 patients (32%) underwent inpatient pulmonary rehabilitation before transplantation, and 337 (70%) did so afterward.

### Subjective assessment of the quality of life

Working patients rated their quality of life higher than unemployed ones did: median, 80% (IQR 70; 95), compared to 75% (IQR 50; 85) (p = 0.001). Most of the working patients (65%) said that working had improved their quality of life, while 32% said working had made no difference and 3% said it had lessened their quality of life.

### Physical exercise

366 patients (77%) said they regularly took physical exercise after lung transplantation, 99 (21%) said they did not, and 11 (2%) did not answer the question. 270 (76%) participated in sports more than once per week. 155 of the 366 patients who exercised (42%) said they did regular strength and endurance training, while 180 (49%) did only endurance training and 19 (5%) did only strength training. 12 (3%) gave no further information. The percentage of patients who exercised was no different among employed patients (78%) and unemployed patients. The ability to climb at least two flights of stairs was, however, more common among the employed patients — 130 (73%) versus 169 (56%) (Table 2).

### Education, age, social situation

Working patients were more commonly single (Table 2). 76 (14%) of the entire patient collective required nursing care. The degree of disability and annotations in the handicapped pass are listed in Table 2.

### Financial situation

The unemployed patients differed from the employed ones in the nature of their sources of income, but not in their household incomes overall. 70% of the unemployed patients received a disability pension, while 37% of the employed ones did; both groups received financial support from relatives to an equal extent (11% vs. 13%), while more of the unemployed than the employed patients received government social assistance (10% vs. 3%; p = 0.001).

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**TABLE 1**

Demographic data of long-term transplant recipients, i.e., those who underwent transplantation more than 6 months before participating in the study*

<table>
<thead>
<tr>
<th>Variable</th>
<th>All patients</th>
<th>Returned to work</th>
<th>Did not return to work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number (%)</td>
<td>476</td>
<td>179</td>
<td>297</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– female</td>
<td>231 (49)</td>
<td>90 (50)</td>
<td>141 (47)</td>
</tr>
<tr>
<td>– male</td>
<td>245 (51)</td>
<td>89 (50)</td>
<td>156 (53)</td>
</tr>
<tr>
<td>Single lung transplant</td>
<td>62 (13)</td>
<td>23 (13)</td>
<td>39 (13)</td>
</tr>
<tr>
<td>Double lung transplant</td>
<td>365 (77)</td>
<td>136 (76)</td>
<td>229 (77)</td>
</tr>
<tr>
<td>Heart-lung transplant</td>
<td>49 (10)</td>
<td>20 (11)</td>
<td>29 (10)</td>
</tr>
<tr>
<td>Age (years)</td>
<td>44.9 (33; 54)</td>
<td>43.3 (31; 53)</td>
<td>45.1 (34; 55)</td>
</tr>
<tr>
<td>Years from transplantation</td>
<td>4.3 (2.4; 8)</td>
<td>4.7 (2.4; 8.7)</td>
<td>4.3 (2.4; 7.6)</td>
</tr>
<tr>
<td>Chronic transplant failure</td>
<td>181 (38)</td>
<td>70 (39)</td>
<td>111 (37)</td>
</tr>
</tbody>
</table>

*presented as medians and interquartiles
# TABLE 2

## Socio-economic data

<table>
<thead>
<tr>
<th>Variable</th>
<th>All patients</th>
<th>Returned to work</th>
<th>Did not return to work</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>476</td>
<td>179</td>
<td>297</td>
<td></td>
</tr>
<tr>
<td>Net monthly household income (€)</td>
<td>1800 (1072; 2800)</td>
<td>2000 (1180; 3000)</td>
<td>1600 (1000; 2500)</td>
<td>0.43</td>
</tr>
<tr>
<td>Stopped work before LTx (months)</td>
<td>24 (12; 60)</td>
<td>12 (4; 31)</td>
<td>36 (18; 65)</td>
<td>0.001</td>
</tr>
<tr>
<td>Hours worked per week before LTx</td>
<td>20 (18; 30)</td>
<td>20 (15; 30)</td>
<td>20 (20;29)</td>
<td>0.001</td>
</tr>
<tr>
<td>Hours worked per week after LTx</td>
<td>14.5 (10; 19)</td>
<td>14.5 (10; 19)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Degree of disability (%)</td>
<td>100 (80; 100)</td>
<td>100 (80; 100)</td>
<td>100 (80; 100)</td>
<td>0.5</td>
</tr>
<tr>
<td>Disability category*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– G</td>
<td>248 (52)</td>
<td>95 (53)</td>
<td>153 (51)</td>
<td>0.7</td>
</tr>
<tr>
<td>– aG</td>
<td>195 (41)</td>
<td>62 (35)</td>
<td>133 (45)</td>
<td>0.03</td>
</tr>
<tr>
<td>– B</td>
<td>116 (24)</td>
<td>41 (24)</td>
<td>75 (25)</td>
<td>0.6</td>
</tr>
<tr>
<td>– H</td>
<td>25 (5)</td>
<td>12 (7)</td>
<td>13 (4)</td>
<td>0.3</td>
</tr>
<tr>
<td>– RF</td>
<td>132 (28)</td>
<td>42 (24)</td>
<td>90 (30)</td>
<td>0.07</td>
</tr>
<tr>
<td>Highest level of school education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– none</td>
<td>10 (2)</td>
<td>4 (2)</td>
<td>6 (2)</td>
<td>1</td>
</tr>
<tr>
<td>– middle school</td>
<td>180 (38)</td>
<td>43 (24)</td>
<td>137 (46)</td>
<td>0.001</td>
</tr>
<tr>
<td>– vocational high school</td>
<td>142 (30)</td>
<td>55 (31)</td>
<td>87 (30)</td>
<td>0.7</td>
</tr>
<tr>
<td>– matriculation examination (Abitur)</td>
<td>125 (26)</td>
<td>71 (40)</td>
<td>54 (18)</td>
<td>0.001</td>
</tr>
<tr>
<td>– no answer to question</td>
<td>19 (4)</td>
<td>6 (3)</td>
<td>13 (4)</td>
<td>0.6</td>
</tr>
<tr>
<td>Further education/training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– none</td>
<td>47 (10)</td>
<td>19 (11)</td>
<td>28 (9)</td>
<td>0.07</td>
</tr>
<tr>
<td>– occupational training completed</td>
<td>299 (63)</td>
<td>92 (51)</td>
<td>207 (70)</td>
<td>0.001</td>
</tr>
<tr>
<td>– university degree</td>
<td>84 (17)</td>
<td>49 (27)</td>
<td>47 (16)</td>
<td>0.001</td>
</tr>
<tr>
<td>– no answer to question</td>
<td>46 (10)</td>
<td>19 (11)</td>
<td>27 (9)</td>
<td>0.3</td>
</tr>
<tr>
<td>Social situation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– family with children</td>
<td>149 (32)</td>
<td>63 (35)</td>
<td>86 (29)</td>
<td>0.2</td>
</tr>
<tr>
<td>– married or with life partner</td>
<td>216 (45)</td>
<td>63 (35)</td>
<td>153 (51)</td>
<td>0.001</td>
</tr>
<tr>
<td>– single</td>
<td>96 (20)</td>
<td>49 (28)</td>
<td>47 (16)</td>
<td>0.003</td>
</tr>
<tr>
<td>– no answer to question</td>
<td>15 (3)</td>
<td>4 (2)</td>
<td>11 (4)</td>
<td>0.4</td>
</tr>
<tr>
<td>Subjective assessment of health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– very good</td>
<td>70 (15)</td>
<td>36 (20)</td>
<td>34 (11)</td>
<td>0.01</td>
</tr>
<tr>
<td>– good</td>
<td>252 (53)</td>
<td>96 (54)</td>
<td>156 (53)</td>
<td>0.9</td>
</tr>
<tr>
<td>– moderately good</td>
<td>97 (20)</td>
<td>33 (18)</td>
<td>64 (21)</td>
<td>0.5</td>
</tr>
<tr>
<td>– not very good</td>
<td>37 (8)</td>
<td>8 (5)</td>
<td>29 (10)</td>
<td>0.05</td>
</tr>
<tr>
<td>– poor</td>
<td>17 (4)</td>
<td>5 (3)</td>
<td>12 (4)</td>
<td>0.6</td>
</tr>
<tr>
<td>– no answer to question</td>
<td>3 (&lt;1)</td>
<td>1 (&lt;1)</td>
<td>2 (1)</td>
<td>1</td>
</tr>
<tr>
<td>Quality of life (on visual analog scale)</td>
<td>80 (60; 90)</td>
<td>80 (70; 95)</td>
<td>75 (50; 85)</td>
<td>0.001</td>
</tr>
<tr>
<td>Physical aids**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– supplemental oxygen</td>
<td>30 (6)</td>
<td>10 (6)</td>
<td>20 (7)</td>
<td>0.7</td>
</tr>
<tr>
<td>– mask ventilation</td>
<td>8 (2)</td>
<td>5 (3)</td>
<td>3 (1)</td>
<td>0.3</td>
</tr>
<tr>
<td>– walking stick</td>
<td>11 (2)</td>
<td>6 (3)</td>
<td>5 (2)</td>
<td>0.5</td>
</tr>
<tr>
<td>– walking frame</td>
<td>28 (6)</td>
<td>3 (2)</td>
<td>25 (8)</td>
<td>0.01</td>
</tr>
<tr>
<td>– wheelchair</td>
<td>21 (4)</td>
<td>4 (2)</td>
<td>17 (6)</td>
<td>0.2</td>
</tr>
<tr>
<td>– none</td>
<td>404 (85)</td>
<td>157 (88)</td>
<td>247 (83)</td>
<td>0.2</td>
</tr>
<tr>
<td>Hospitalizations in the past 12 months</td>
<td>1 (0; 2)</td>
<td>1 (0; 2)</td>
<td>1 (0; 2)</td>
<td>0.5</td>
</tr>
<tr>
<td>Inpatient days in the past 12 months</td>
<td>13 (6; 3; 27)</td>
<td>10 (0; 24)</td>
<td>14 (7; 28)</td>
<td>0.24</td>
</tr>
<tr>
<td>Rejection episodes in the past 12 months</td>
<td>1 (1; 3)</td>
<td>1.5 (1; 3)</td>
<td>1 (1; 2)</td>
<td>0.23</td>
</tr>
<tr>
<td>Stair-climbing ability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1 flight</td>
<td>47 (10)</td>
<td>8 (4)</td>
<td>39 (14)</td>
<td>0.002</td>
</tr>
<tr>
<td>1–2 flights</td>
<td>130 (27)</td>
<td>41 (23)</td>
<td>89 (30)</td>
<td>0.1</td>
</tr>
<tr>
<td>&gt;2 flights</td>
<td>299 (63)</td>
<td>130 (73)</td>
<td>169 (56)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*multiple categories possible.

** multiple selection possible.

LTx, lung transplantation.

Symbols (annotations in German handicapped pass): G, marked impairment of gait; aG, severe impairment of gait; B, needs to be accompanied by another person; H, incapable of self-assistance; RF, exempt from radio license fee.
Similar results were obtained in studies from abroad: the rate of return to work was 37% in a study from the USA and Canada (7) and 39% in an Italian study (10). The lowest and highest rates were found in Belgium (28%) (6) and Taiwan (42%) (11), respectively. Thus, although patients in Germany benefit from a more extensive social safety net than those in other countries, their rate of return to work is comparable.

A direct comparison of lung transplant recipients with recipients of other solid organs (heart, liver, kidney) reveals that kidney transplant recipients return to work more often than the rest. In Belgium, De Baere found employment rates of 58% among kidney transplant recipients and only 28% among lung transplant recipients (6). The figures for heart and liver transplant recipients were intermediate—43% and 37%, respectively. These differences may be due, in part, to the invasiveness of the operative procedures and the intensity of immunosuppression, and in part to differing characteristics of the patient groups (e.g., age). Lung transplantation is associated with a particularly high risk of infection and organ rejection (6). Among the factors affecting employment are age and educational level; it has been known for a long time from studies on non-transplanted patients with asthma, chronic obstructive pulmonary disease (COPD), or status post myocardial infarction that disease severity and the patient’s age and educational level are important determinants of the return to work (12, 13).

The patient’s level of education has been found in previous studies of transplant recipients to be an important factor affecting the return to work (8, 14). Thus, patients with a university degree have a relatively high rate of employment after transplantation. Alexopoulos and Burdorf studied the effect of educational level on the return to work in patients with asthma and COPD: blue-collar
Some jobs cannot, as a rule, be performed by lung transplant recipients at all, both because physical performance ability after lung transplantation is only roughly half of that in non-transplanted persons (15), and because certain occupations are associated with an elevated risk of infection (e.g., farming, gardening, animal care). The same holds true for heart transplant recipients (16).

The connection between employment and physical performance ability is obvious. It is noteworthy, however, that physical fitness and the frequency of participation in sports are not correlated with each other. Thus, the higher performance ability of the employed patients may be due to a physical training effect of the job itself. The questionnaire in this study gave only an incomplete picture of the quality and intensity of physical training; in the end, the question of causation cannot be satisfactorily answered from the present data.

Most of the employed patients were employed part time; only one-quarter were employed full time. They took an average of 10 sick days off from work per year. This number was very close to the national average for the overall population (8.4 days—figure for 2012 from the German Federal Statistical Office).

Previous studies have shown that patients may be kept from returning to work not only by advanced age, poor health, or financial benefits (8, 14, 17, 18), but also by the fear of contracting an infection in the workplace (7). In this study, however, the employed patients were not hospitalized any more frequently (or with more inpatient days) than the unemployed ones, not did they suffer from organ rejection any more frequently. The evidence thus suggests that returning to work does not, in fact, endanger health. This conclusion is further supported by the lack of any difference between the employed and unemployed patients at 5 years of follow-up with respect to overall survival, extent of organ rejection, or physical performance ability.

The official degree of disability (Grad der Behinderung) of lung transplant recipients is 100% in the first two years after transplantation, as recommended by the German Federal Ministry of Labor and Social Affairs; after the first two years, at least 70% disability is recommended (19).

Limitations

The main limitation of this study lies in its design and in the nature of data acquisition by questionnaire. For example, the number of sick days taken off from work and the number of days spent as a hospital inpatient in the last twelve months were determined only from the patients’ statements and not checked against documented facts. The same holds true for physical performance ability. Thus, the question whether the employed patients’ better quality of life might actually have been due to better health, rather than job satisfaction, cannot be answered with certainty.

Overview

Lung transplant recipients should be encouraged to return to work as long as their job poses no special risk to health. Physicians should help their patients return to work by providing positive support and by allaying fears that working might expose the patient to higher rates of infection or organ rejection (which it does not). Barriers to the return to work, such as overprotective family members or the potential employer’s fear that the patient will have to take many days off because of illness, can be broken down by the physician with an explanation of the facts. On the societal level, because the number of persons bearing organ transplants over the long term seems certain to grow, there should be discussion of a more flexible financial safety net for these patients, so as not to discourage their return to work. An important aspect of this would be an unbureaucratic transition from a disability pension to income gained through work.
KEY MESSAGES

- Our study of the socio-economic status of lung transplant recipients showed that 38% returned to work after transplantation.
- Factors that influence the return to work include the patient’s educational level, physical performance ability, employment in the six months before transplantation, and family status.
- Patients who return to work after lung transplantation have a better quality of life than those who do not. Thus, transplant recipients should be encouraged to return to work.
- Reasons for not returning to work include health problems and, possibly, financial support in the form of disability benefits.
- This study revealed no risk to health from returning to work after lung transplantation (i.e., work does not confer any increased rate of infection or organ rejection, not including particular occupations that are known to expose the individual to infectious pathogens).

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Conflict of interest statement
The authors declare that no conflict of interest exists.

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REFERENCES

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eQuestionnaire:
www.aerzteblatt-international.de/15m213
Fragebogen zur beruflichen Situation nach Lungentransplantation

ID-Nr.: [__] [__] [__] [__] Datum: [__] [__] [__] [__] [__] [__] [__]
Init.: [__] [__] [__]

Verwenden Sie einen Kugelschreiber, rote Farbe unbedingt vermeiden!
Dieser Fragebogen wird maschinell erfasst. Bitte beachten Sie im Interesse einer optimalen Datenerfassung die links gegebenen Hinweise beim Ausfüllen.

Soweit bei den einzelnen Fragen nichts anderes angegeben ist, kreuzen Sie bitte nur die Antwort an, die am ehesten auf Sie zutrifft.

Liebe Patienten,
im Folgenden finden Sie Fragen zur beruflichen Situation nach einer Lungentransplantation. Aus unserer täglichen Arbeit wissen wir, dass der Weg in die Berufstätigkeit nach einer Transplantation nicht immer leicht ist. Wir möchten daher gerne erfahren, welches Ihre Erfahrungen sind und wie zufrieden Sie mit Ihrer aktuellen beruflichen Situation sind.

Für das Ausfüllen des Fragebogens benötigen Sie ca. 15-20 Minuten. Bitte tragen Sie nirgendwo Ihren Namen ein und unterschreiben Sie den Fragebogen auch nicht. So können Ihre Antworten vertraulich behandelt und anonymisiert ausgewertet werden. Ihre Informationen werden zur Überprüfung der Behandlungskonzepte genutzt, sie werden nicht personenbezogen ausgewertet, so dass Sie mit Ihrer Antwort einen Beitrag zur Verbesserung unserer Arbeit leisten.

Vielen Dank für Ihre Mitarbeit!
Soweit bei den einzelnen Fragen nichts anderes angegeben ist, kreuzen Sie bitte nur eine Antwort an bzw. geben Sie nur ganze Zahlen an!

Fragen zu Ihrer gegenwärtigen Situation

1. Wie würden Sie Ihren aktuellen Gesundheitszustand beschreiben?
   - [ ] sehr gut
   - [ ] gut
   - [ ] mäßig
   - [ ] weniger gut
   - [ ] schlecht

2. Wie hoch ist aktuell Ihre Belastbarkeit beim Treppensteigen bis Sie eine Pause einlegen müssen?
   - [ ] kaum 1 Stufe
   - [ ] weniger als 1 Etage
   - [ ] 1 bis < 2 Etagen
   - [ ] 2-4 Etagen
   - [ ] mehr als 4 Etagen

3. Benötigen Sie aktuell eines der folgenden medizinischen Hilfsmittel? (Mehrfachnennungen sind möglich)
   - [ ] Sauerstoff
   - [ ] Rollator/Gehwagen
   - [ ] Maskenbeatmung
   - [ ] Rollstuhl
   - [ ] Gehstock/Gehstützen
   - [ ] keines der genannten Hilfsmittel

Fragen zur beruflichen Situation

4. Waren Sie vor Ihrer Transplantation je berufstätig?
   - [ ] nein, war vor der Transplantation nie berufstätig (Bitte weiter mit Frage 7.)
   - [ ] ja, Auszubildende/r
   - [ ] ja, Student/in
   - [ ] ja, ich war berufstätig als:  
     - [ ] Arbeiter/in
     - [ ] Angestellte/r
     - [ ] Beamter/in
     - [ ] Unternehmer/in (selbständig)

5. Bis wann vor Ihrer Transplantation waren Sie berufstätig bzw. in Studium/Ausbildung?
   - [ ] bis zur Transplantation
   - [ ] bis _____ Monate vor der Transplantation

6. Wie waren Sie vor der Transplantation beschäftigt?
   - [ ] Vollzeit
   - [ ] Teilzeit mit _____ Wochenstunden

7. Wenn Sie vor der Transplantation nicht berufstätig bzw. in Studium/Ausbildung waren: Was waren die Gründe?
   - [ ] gesundheitliche Gründe
   - [ ] Arbeitssuchend
   - [ ] berentet aus Altersgründen
   - [ ] berentet aufgrund von Krankheit
   - [ ] familiäre/persönliche Gründe
   - [ ] sonstige Gründe: ____________________________
8. Sind/waren Sie nach der Transplantation je berufstätig bzw. in Studium/Ausbildung?

- ja, bin aktuell berufstätig:  
  - im gleichen Beruf wie vor der Transplantation
  - in anderem Beruf (z. B. nach Umschulung)
  - beschäftigt in Vollzeit
  - beschäftigt in Teilzeit mit _____, Wochenstunden
  - Auszubildende/r; Student/in
  - in Umschulung

- ja, bin aber aktuell nicht berufstätig:  
  - arbeitssuchend
  - arbeitsunfähig
  - berentet/Rente beantragt
  - Hausfrau/Hausmann

- nein, war seit Transplantation nie berufstätig (wenn nein: bitte weiter mit Frage 16)

9. In welchem Zeitraum nach der Transplantation haben Sie eine Berufstätigkeit bzw. Studium/Ausbildung aufgenommen?

_____ Monate nach Transplantation (Wenn aktuell nicht berufstätig: bitte weiter mit Frage 11.)

10. Was sind die Gründe für Ihre jetzige Berufstätigkeit? (Mehrfachnennungen sind möglich)

- finanzielle Situation
- Austausch mit Kollegen/Abwechslung
- wiedergewonnene Normalität
- sinnvolle Beschäftigung/Freude an der Arbeit
- andere Gründe: ____________________________________________

11. Wie lange waren Sie in den vergangenen 12 Monaten beschäftigt?

_____ Wochen

12. Wie viele krankheitsbedingte berufliche Fehltage hatten Sie in den letzten 12 Monaten?

_______ Anzahl der Fehltage in den letzten 12 Monaten

13. Haben Sie nach der Transplantation wegen der Transplantation in Ihrem Berufsalltag Probleme bekommen?

- ja
- nein (wenn nein: bitte weiter mit Frage 15.)

14. Falls ja, worum handelte es sich? (Mehrfachnennungen sind möglich)

- Berufswechsel/Umschulung
- Berentung angeraten
- Versetzung/Arbeitsplatzwechsel
- Kündigung
- Ärger mit Kollegen/Vorgesetzten

- andere Probleme: ____________________________________________
15. Hat sich Ihre Lebensqualität durch Ihre Berufstätigkeit nach der Transplantation verändert?
☐ stark verbessert ☐ verbessert ☐ gleich geblieben ☐ verschlechtert ☐ stark verschlechtert


17. Wie zufrieden sind Sie insgesamt mit Ihrer aktuellen beruflichen Situation, unabhängig davon, ob Sie arbeiten oder nicht?
☐ sehr zufrieden ☐ zufrieden ☐ unfrieden ☐ sehr unfrieden

Fragen zur Zeit vor und nach der Transplantation

18. Sind Sie dringlich bzw. hochdringlich transplantiert worden?
☐ ja ☐ nein

19. Wie lange waren Sie vor der Transplantation auf der Warteliste?

____ Monate

20. Hatten Sie einen Rehabilitations- oder Kuraufenthalt im Zeitraum von 12 Monaten vor der Transplantation?
☐ ja ☐ nein

21. Hatten Sie einen Rehabilitations- oder Kuraufenthalt nach der Transplantation?
☐ ja ☐ nein

22. Wie viele Krankenhausaufenthalte hatten Sie nach der Transplantation in den letzten 12 Monaten? (Ausgenommen Rehabilitationsaufenthalte und die Transplantation selbst)

_____ Krankenhausaufenthalte seit der Transplantation

23. Wie lang waren diese Krankenhausaufenthalte zusammengenommen seit der Transplantation, längstens aber im Zeitraum der letzte 12 Monate?

c.a. _______ Tage

24. Wie viele Abstoßungsbehandlungen hatten Sie seit der Transplantation?

_____ Abstoßungsbehandlungen seit der Transplantation

25. Haben Sie vor der Transplantation Sport betrieben?
☐ ja: ☐ täglich ☐ mehrfach wöchentlich ☐ 1x wöchentlich ☐ seltener als 1x wöchentlich
☐ nein
26. Betreiben Sie **aktuell** Sport? □ ja: □ täglich □ mehrfach wöchentlich □ 1x wöchentlich □ seltener als 1x wöchentlich □ nein (wenn nein: bitte weiter mit Frage 28)

27. Welche Sportart betreiben Sie?
☐ nur Krafttraining (Hanteln, Gewichte, Expander, Bänder)
☐ nur Ausdauertraining (Ergometer, Radfahren, Joggen, Walken, Stepper)
☐ Krafttraining und Ausdauertraining

28. Sind Sie pflegebedürftig? □ ja, Pflegestufe _______ □ nein

29. Wie hoch ist der Grad Ihrer Schwerbehinderung (in %)? _______ GdB

30. Welche Merkzeichen haben Sie im Schwerbehindertenausweis? (Mehrfachnennungen sind möglich)
☐ G ☐ aG ☐ B ☐ H ☐ RF ☐ keine ☐ weiß nicht

Zum Abschluss noch einige Fragen zu Ihrer Person

31. Welchen Schulabschluss haben Sie?
☐ keinen Abschluss ☐ Hauptschulabschluss ☐ Realschulabschluss ☐ Hochschulreife/Abitur

32. Welche berufliche Qualifikation haben Sie?
☐ keine ☐ Ausbildungsberuf/Lehre/Fachschule ☐ Fachhochschul-/Universitätsstudium
☐ sonstiges: __________________________

33. Wie ist Ihre Wohnsituation?
☐ mit Familie (z. B. Eltern, Kinder) ☐ mit Ehepartner/Partner ☐ alleinlebend ☐ in einem Heim

34. Haben Sie Kinder? □ ja: Anzahl _______ □ nein

35. Leben Haustiere in Ihrem Haushalt?
☐ nein
☐ ja: Art und Anzahl: __________________________

36. Welche Art von Einkommen beziehen Sie?
☐ Gehalt durch Berufstätigkeit ☐ Unterstützung durch Familie/Partner
☐ staatliche Unterstützung (Bafög, Arbeitslosengeld 1 und 2) ☐ Erwerbsunfähigkeitsrente
☐ Altersrente

37. Wie hoch ist das monatliche Nettoeinkommen Ihres Haushalts? _______ €

38. Haben Sie weitere Anmerkungen?

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Vielen Dank für Ihre Mitarbeit!