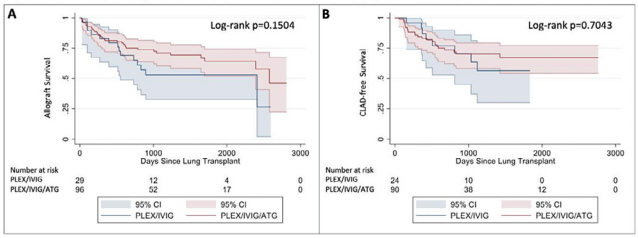
retrospective cohort study to determine the impact of receiving ATG as part of our program's peri-operative desensitization protocol on allograft survival (death/re-transplant) and chronic lung allograft dysfunction (CLAD)-free survival among lung transplant recipients (LTRs) with DSA at the time of transplant.

Methods: All adult, first-time LTRs from January 2014 to December 2019 who had DSA at the time of transplant and received plasmapheresis (PLEX) and intravenous immune globulin (IVIG) as per our protocol were included in this study. Our protocol also includes peri-operative ATG, but it may be withheld for infection concern. Patients were divided into 2 groups: those who received peri-operative PLEX/IVIG/ATG and those who received PLEX/IVIG only. Kaplan Meier estimates of allograft survival and CLAD-free survival were compared using the log-rank test. Patient characteristics were compared using Fisher's exact test. Patients were followed until October 2021.

Results: At total of 125 LTRs were included: 96 (77%) received peri-operative PLEX/IVIG/ATG and 29 (23%) received PLEX/IVIG only. Compared to patients who received peri-operative ATG, patients who did not were more likely to be younger (p=0.003) and have cystic fibrosis/bronchiectasis (p=0.002), but they did not have significantly different allograft survival (p=0.1504) or CLAD-free survival (p=0.7043) (Figure 1).

Conclusion: Based on this data, likely confounded by small sample size and ATG contraindications, the benefit of ATG in peri-operative desensitization for DSA positive LTRs remains unclear. Adjustment analyses are ongoing, but a randomized controlled trial of peri-operative ATG for DSA positive LTRs is needed.

Figure 1: Probability of allograft survival (A) and CLAD-free survival (B) by administration of ATG



(1047)

Association of Chronic Proton Pump Inhibitor Use in Lung Transplant Recipients with Long-Term Outcomes: A Retrospective Cohort Study

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Purpose: Proton pump inhibitors (PPI) are widely prescribed long-term for lung transplant recipients in the absence of proven PPI-indicated conditions, despite little evidence supporting this practice. Several adverse effects related to chronic PPI use have been reported in observational studies in the general population. We aimed to assess whether chronic PPI use in lung transplant recipients is associated with benefits in long-term outcomes, specifically chronic lung allograft dysfunction (CLAD) and death/retransplant.

Methods: All adult lung transplant recipients transplanted between 1999 and 2018 who survived past 1-year post-transplant and had at least 4 pulmonary function tests were included. Patients were classified as on-PPI if there was a recorded prescription in the electronic medical record for dexlansoprazole, esomeprazole, lansoprazole, omeprazole, pantoprazole, or rabeprazole before 1-year post-transplant that continued after 1-year post-transplant. All other patients were classified as off-PPI. Cox proportional hazards models were used to determine the associations between PPI use and outcomes.

Results: 171 patients were off-PPI and 1394 patients were on-PPI. 780 patients developed CLAD and 808 died/were retransplanted. Compared to the on-PPI group, the off-PPI group was younger, had fewer re-transplants, and more transplants before 2010. In univariable analyses, PPI use was protective against CLAD (HR=0.76[0.62-0.94], p=0.01) and death/retransplant (HR=0.82[0.67-0.99], p=0.04). These associations were no longer significant after adjusting for age, sex, transplant type, transplant number, transplant era, primary disease, and CMV mismatch in multivariable analyses for CLAD (HR=0.87[0.70-1.08], p=0.20) and death/retransplant (HR=0.83[0.68-1.02], p=0.07).

Conclusion: In a retrospective cohort study, chronic PPI use after the first post-transplant year in lung transplant recipients was associated with a non-statistically significant benefit in death/retransplant, independent of potential confounders. As additional unknown confounders may exist, prospective randomized studies are needed to provide higher levels of evidence. Nevertheless, it may be reasonable to re-evaluate the practice of widely prescribing long-term PPIs in lung transplant recipients lacking a clear indication.

(1048)

Fertility Considerations and Lung Transplantation, a Scoping Review

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Purpose: Improved survival of transplant recipients has led to an increased focus on quality of life outcomes, including reproduction. Thirty two percent of lung transplants are performed on patients with childbearing potential. Compared to kidney and liver transplantation, lung transplantation has unique reproductive considerations including increased immunosuppression requirements, lifelong steroid use, and higher baseline risk for rejection. Lung transplant recipients may require or request assisted reproductive technology (ART) to conceive due to their underlying condition. Evidence-based decisions regarding reproduction are challenging for lung transplant recipients and their medical teams due to the lack of published literature on the subject in this specific population. We carried out a comprehensive scoping review of published research about reproductive considerations after lung transplantation.

Methods: An expert librarian performed a literature search on eight scholarly databases using controlled vocabulary and key words representing the concepts "lung transplantation" and "pregnancy" or "reproduction". Animal studies were excluded. No other limits were applied. Databases were searched from inception to March 8, 2021. Results (1474) were exported to a review management software, duplicates (488) were removed. Two independent reviewers screened 986 articles, 40 studies were included in data extraction.

Results: 40 articles met the inclusion criteria for full review, of these, 90% discussed pregnancy outcomes, 15% discussed fertility preservation, and 8% discussed pre-conception counselling, no articles discussed lactation. The majority of publications were case reports or case series describing at least 72 unique patients, and 86 unique pregnancies. Reporting was heterogeneous; the most frequently reported outcomes were maternal obstetric and transplant complications.

Conclusion: Successful pregnancy after lung transplantation is possible. Overall, little has been published regarding fertility considerations following lung transplantation. Further study is required to clarify natural and assisted reproductive outcomes. Interpretation of the existing data is challenging due to differences in outcome reporting, and publication bias. Standardized reporting is needed to facilitate understanding of this important aspect of post transplant care.

(1049)

Telemonitoring: An Opportunity to Improve Multidisciplinary Care in Lung Transplanted Patients

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Purpose: Telemedicine has been successfully employed in a wide range of specialties. We hereby present the results of a pivotal study we ran in our centre just before the COVID19 pandemic.
Methods: This was a prospective study including all adult cystic fibrosis patients who underwent lung transplant (LuTx) from September 2017 to August 2019. Patients were randomized into two groups; patients assigned to the first arm (intervention) received a home medical assistant (HMA) system device, to which a pulse oximeter and a spirometer with reusable turbine were integrated; they were asked to perform a spirometry and register their SpO2 at rest and on effort on a twice-weekly basis. All the data were digitally transmitted to our centre, where physiotherapists and physicians were able to analyse them real-time. Both the groups received traditional hospital-based follow-up.
Results: 32 patients were enrolled, 16 in each group. No statistically significant difference was found between the two groups (see Table 1).With reference to the telemonitoring group:- Adherence to telemonitoring significantly decreased during the 12months period of follow up (see figure 1).- Hospital reported data were consistent with the last being registered with the HMA device.- Of note, two patients were requested to anticipate their hospital routine visit because of a FEV1 decrease being reported on their HMA device, in order to rule out possible acute lung allograft dysfunction.- 13 out of 16 patients reported a high degree of satisfaction with the telemonitoring experience.
Conclusion: The COVID19 pandemic highlighted the necessity to investigate alternative practices to treat chronically ill individuals. In our study, telemonitoring proved to be a valuable tool to improve quality health care to LuTx recipients, especially for those who live far from the transplant centre. We are now implementing this approach scheduling online video consultations. Further research should be focused on standardizing quality of telemedicine services.

Figure 1

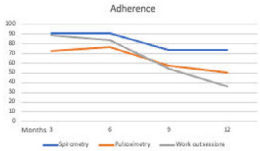

Table 1

	Total	Cases	Controls	p	Missing
Walking test (in terms of distance, expressed in meters)					
At discharge	479 (426; 534)	492 (455; 532)	460 (412; 569)	0,289	0
At 3 months from LuTx	610 (550; 640)	615 (540; 652)	583 (555; 636)	0,715	3
At 6 months from LuTx	600 (542; 622)	590 (529; 636)	600 (555; 625)	0,756	5
At 9 months from LuTx	598 (549; 650)	585 (520; 636)	600 (581; 655)	0,434	7
At 12 months from LuTx	620 (576; 661)	611 (570; 665)	620 (576; 662)	0,999	4
SGRQ (expressed as no./100)					
At discharge	24 (9; 45)	24 (5; 42)	24 (13; 57)	0,724	0
At 3 months from LuTx	5 (2; 15)	3 (1; 18)	7 (4; 11)	0,428	6
At 6 months from LuTx	5 (3; 9)	4 (3; 11)	6 (4; 9)	0,65	6
At 9 months from LuTx	5 (1; 7)	4 (1; 7)	6 (3; 7)	0,695	6
At 12 months from LuTx	3 (3; 7)	3 (2; 6)	4 (3; 8)	0,435	7
PFTs, expressed as % of predicted					
FVC, at 3 months from LuTx	78 (68; 93)	80 (68; 95)	73 (70; 91)	0,586	1
FEV1, at 3 months from LuTx	81 (69; 90)	83 (70; 93)	76 (62; 83)	0,586	1
FVC, at 6 months from LuTx	87 (74; 96)	90 (75; 100)	82 (74; 92)	0,565	1
FEV1, at 6 months from LuTx	83 (72; 94)	87 (73; 98)	82 (68; 91)	0,357	1
FVC, at 9 months from LuTx	87 (77; 102)	92 (82; 104)	84 (75; 101)	0,466	2
FEV1, at 9 months from LuTx	84 (78; 96)	91 (74; 96)	78 (67; 97)	0,486	2
FVC, at 12 months from LuTx	91 (78; 103)	97 (83; 103)	85 (76; 107)	0,653	2
FEV1, at 12 months from LuTx	87 (74; 97)	92 (77; 98)	78 (72; 97)	0,285	2

(1050)

Improving Bronchoscopy Safety and Diagnostic Yield in Lung Transplant Recipients

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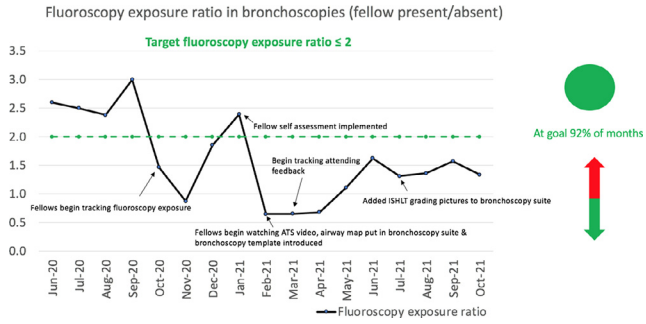
Purpose: Bronchoscopy is invaluable in the diagnosis of airway complications, infection, and rejection in lung transplant recipients, and a fundamental skill in pulmonology fellowship training. We aimed to improve bronchoscopy safety and diagnostic yield in our teaching institution by targeting two quality metrics: 1) higher patient radiation exposure in fellow-assisted compared to attending-only procedures and 2) variability in documentation of exam findings.
Methods: Using an A3 lean approach, we assessed current conditions by retrospective review of lung transplant bronchoscopies over four months. Then, we established target conditions of 1) radiation exposure in fellow-assisted procedures ≤ 2 times that of attending-only and 2) standardized documentation per ISHLT airway grading. Next, we conducted a gap analysis to identify root causes and implemented countermeasures over twelve months.
Results: In current conditions, the mean radiation exposure in fellow-assisted bronchoscopies was 2.6 ± 0.3 times higher than attending-only. We targeted fluoroscopy duration, lack of knowledge, and variable feedback with these countermeasures: tracking of fluoroscopy exposure, self-assessment of bronchoscopy competency, access to a fluoroscopy education video, and post-procedure attending feedback. As a result, radiation exposure ≤ 2 times was achieved in 11/12 months (92%). In current conditions, documentation included ischemia, malacia and stenosis in < 20% of bronchoscopies. We targeted lack of knowledge by creating a templated bronchoscopy report with multiple choice options to document ISHLT airway grading and placed representative graphics in the bronchoscopy suite. As a result, dehiscence, ischemia, malacia, and stenosis were documented in > 80% of bronchoscopies.
Conclusion: We successfully reduced radiation exposure difference in fellow assisted bronchoscopies and reduced variability of bronchoscopy documentation by implementing multiple countermeasures using an A3 lean approach.



(1051)

Implementation of In-Clinic SARS-CoV-2 Vaccination in Advanced Heart Failure, Lung Disease, and Transplant Clinic

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Purpose: Vaccine hesitancy is a hurdle to achieving full vaccination against SARS-CoV-2 in the U.S. In an effort to address vaccine hesitancy among the high-risk group of advanced heart and lung disease and post-heart and lung transplant patients, we implemented an in-clinic vaccination program. Starting 9/9/2021, we offered the Pfizer/BioNTech SARS-CoV-2 mRNA vaccine in clinic to eligible individuals, including patient family members who were patients in our healthcare system. We sought to describe the results of the first month of implementing an in-clinic SARS-CoV-2 vaccination effort.
Methods: We reviewed the experience of providing SARS-CoV-2 vaccination in clinic during the first four weeks of the program (9/9/2021-10/7/2021). Recipients' charts were reviewed for clinical details. We also compared demographics of the in-clinic recipients to those of patients who received inpatient dosing of the same vaccination at our hospital.
Results: From 9/9-10/7/2021, 222 SARS-CoV-2 vaccines were administered in clinic. Average age of recipients was 60 (±15) years. 64 (29%) were given in the heart failure/transplant clinic; 107 (48%) were given in the advanced lung/transplant clinic; 50 (22.5%) were administered to healthcare workers, 10 (4.5%) were administered to family members of patients. 50 (22.5%) were post-transplant patients. Nineteen (8.6%) were the patients' first dose; 200 (90%) were third doses (booster or third dose for immune compromised). During this time period, 12 doses of vaccine