2021 E-Posters

Abstract 1

Presenting Author: Adrian Dychiao **Institution:** UHN, Toronto, Canada

Abstract Title: Assessing the Association Between Pain and Health Related Quality of Life in Kidney Transplant Patients using the PROMIS Pain Summary Score

Abstract Body:

Background: We assess the association between pain and health related quality of life (HRQOL) in kidney transplant recipients (KTR).

Methods: A cross-sectional convenience sample of adult KTRs were recruited in Toronto, ON. Patients completed PROMIS (Patient Reported Outcome Measurement Information System) tools and other validated questionnaires on an electronic data capture system on tablet computers. Only patients who completed our exposure and outcome questionnaires were included in this secondary analysis.

Pain was assessed using PROMIS pain summary score (PROMIS PSS), that is calculated using the PROMIS pain interference z-score and a weighted PROMIS pain intensity score. The primary HRQOL outcome was the EQ-5D (European Quality of Life 5-Dimension) score. The SF-12 PCS (Short Form 12 Physical Component Score) and SF-12 MCS (Short Form 12 Mental Component Score) were secondary outcomes. Descriptive statistics, correlation analysis, and quantile regression adjusted for potential confounders were used to analyze the data. Multiple Imputation by chained equation was used to address missing values.

Results: Of the 312 participants (mean (SD) age=51(16)), 58% were male and 59% were white. Mean (SD) PSS and EQ-5D score was 49.5 (9.5) and 0.84 (0.15) respectively. The PSS correlated strongly and negatively with EQ-5D score (rho= -0.66; p<0.001). For the secondary outcomes, PSS had a strong negative correlation with SF-12 PCS (rho= -0.66; rho<0.001) and a weak negative correlation with SF-12 MCS (rho= -0.38; p<0.001). In a multivariable quantile regression, the association between PSS and EQ-5D score (B= -0.007; p<0.001; 95%CI: -0.008, -0.006), SF-12 PCS (B= -0.725; p<0.001; 95%CI: -0.828,-0.621) and SF-12 MCS (B= -0.179; p=0.003; 95% CI: -0.295,-

0.635) remained significant after adjusting for socio-demographic and clinical co-variables, including depressive symptoms.

Conclusion: We demonstrated that pain, as measured using the PROMIS Pain Summary Score, is independently associated with HRQOL among kidney transplant recipients.

Abstract 2

Presenting Author: AHMAD ABU-KHADER **Institution:** Alberta Precision Laboratories

Abstract Title: COVID-19 Vaccination Induced Ani-HLA Antibody Formation in Renal Patients

Abstract Body:

Background: Anti-HLA antibody (Ab) is associated with risk of allograft loss due to antibody-mediated rejection. The ongoing Covid-19 pandemic is stipulated to impact transplant recipients, so herein we report the follow up for anti-HLA Ab formation in 68 renal patients (Pts) who received Covid vaccination. Methods: EDTA treated neat and diluted sera were analyzed, by Luminex for screening and single antigen assays. Baseline sera were tested before vaccination. Surrogate FCXMs were run. Monitoring parameters before and after vaccination included cPRA, vaccination type, gender, age, previous transplant, and transfusion history. Results: Cohort comprised of 61.8% males and 38.2% females, with mean age of 52 ± 15 years. Pts received COVPBmRNA (78.0%), COVMODmRNA (19%), AstraZeneca (1%), and COVSIIVec (2%) vaccines. Majority of Pts had cPRA of <50% before vaccination, which did not significantly change after vaccine. Pts were tested within 39±55 days (9-126 day range) after first dose of vaccination and 16±23 days (1-85 day range) after second dose. Although 95.6% of Pts did not show changes in anti-HLA Ab profile or cPRA after vaccination compared to the baseline, 3 Pts (4.4%) developed de novo anti-HLA Ab. All new Abs were against class I especially HLA-B locus, namely B57 and B58 in first Pt, B82 in second Pt, and B45 in third Pt. CPRA changed only in the first Pt reaching 9% after vaccination compared to 0% baseline. All three Pts who developed de-novo anti-HLA Abs received mRNA-based vaccine. The earliest detected anti-HLA Abs were after 18 days after only one dose of vaccination. Both donor FCXMs and positive and negative surrogate crossmatches confirmed the anti-B57 in the first Pt. Pre-vaccination serum dilution (1:10) for that Pt, did not reveal any prozone effect confirming that the class I antibodies detected are true de-novo specificities. Conclusion: These findings suggest the ability of some renal Pts' immune system to induce the formation of anti-HLA Abs after mRNA Covid vaccination. Caution must be considered in renal Pts waiting for solid organ transplant to screen for development of de novo anti-HLA after single or double doses of Covid vaccines.

Abstract 3

Presenting Author: Amina Silva **Institution:** Queen's University

Abstract Title: Quality Improvement Tools to Manage Organ Donation Processes: A Scoping Review Protocol

Abstract Body:

Background: The increasing organ shortage worldwide requires organ donation organizations to search for alternatives to maximize organ donation opportunities. One of the alternatives includes enhancing organ donation (OD) processes using Quality Improvement (QI) strategies to avoid losing potential donors. QI tools can be used to facilitate daily activities and prevent errors. Yet, there is a lack of comprehensive evidence around the use of these tools to support OD processes. In this scoping review we aim to collate and synthesize the current literature about safety and efficiency of deceased OD processes, both for Donation after Circulatory Determination of Death (DCD) and donation following Neurological Determination of Death (NDD).

Methods: This scoping review will use the Joanna Briggs Institute (JBI) methodology. The review title and protocol will be registered/published on the JBI repository. A three-step search strategy will be used to search PUBMED, MEDLINE, CINAHL, EMBASE and LILACS databases. Two independent reviewers will screen all references. This review will include any report on QI tools to promote safety and efficiency of both DCD and NDD deceased OD processes, in any healthcare setting worldwide. The data will be extracted and assessed through thematic analysis to find consensus across the data. Results will be presented as a descriptive numerical summary of included studies, and a narrative synthesis.

Expected Results: We anticipate that results from this review will describe how OD processes are managed worldwide and identify evidence-based quality processes for OD by DCD and NDD. We anticipate having preliminary results of this scoping review by September 2021.

Conclusion: Results from this review will identify existing QI tools for DCD and NDD organ donation. These results will then be used to inform a participatory approach to develop a set of QI tools to manage deceased OD.

Abstract 4

Presenting Author: Anastasiia Vasileva **Institution:** University of Toronto

Abstract Title: Oscillometry Tracks Graft Injury Following Lung Transplant (LTx): Association with Acute Cellular Rejection and Chronic Lung Allograft Dysfunction (CLAD)

Abstract Body:

Purpose: CLAD is the major cause of death after LTx. Among the risk factors contributing to CLAD, acute rejection (AR) is the most significant. To allow for earlier identification and treatment of AR, patients are routinely monitored with spirometry. We previously reported that oscillometry (Osc), specifically its metrics of small airway obstruction and ventilatory

inhomogeneity (AX, X5 and R5-19), tracks AR-associated graft injury and improvement after treatment that are indiscernible by spirometry.

Hypothesis: Osc tracks graft injury associated with AR and CLAD.

Methods: From Dec 2017 to Mar 2020, 289 bilateral lung recipients were enrolled for Osc prior to every spirometry; 234 patients had follow-up of ≥3 months, while 39/177 patients followed for ≥6 months developed CLAD. Nine CLAD patients were excluded due to insufficient Osc measurements. Patient demographics, primary diagnosis, CMV match-status, HLA status and the A-score, a cumulative index of biopsy-proven ARs were collected. Multiple regression models were performed to investigate the relationship between variance in oscillometry parameters and A-score. Cox regression was used to assess the association of Osc with risk of developing CLAD, factoring in relevant clinical variables and intra-subject variance of AX, X5 and R5-19.

Results: The A-score was positively associated with variance in Osc parameters. Cox analysis in 168 patients with ≥6 months follow-up found higher A-scores to increase the risk of CLAD (HR=1.62, $p<0.05$). A higher variance in R5-19, AX and X5 was associated with increased risk of CLAD (HR=1.28, 1.29 and 1.50 respectively, $p<0.05$); no association for variance in %FEV1 was found.

Conclusion: Osc measurements reflect graft injury associated with AR. Intra-subject variance in Osc measurements is a marker of ongoing graft injury, which is reflected in the association with the A-score and the increased hazard risk of CLAD. As such, post-LTx graft monitoring with Osc can improve early detection of CLAD.

Abstract 5

Presenting Author: Anisha Dhalla **Institution:** University of Calgary

Abstract Title: Long-Term Outcomes for Living Kidney Donors with Early Guideline-Concordant Follow-Up Care

Abstract Body:

Background: Current guidelines recommend that living kidney donors receive annual lifelong follow-up to monitor kidney health. It is unclear whether early guideline-concordant care is associated with improved subsequent follow-up and clinical outcomes.

Methods: We conducted a retrospective, population-based cohort study using linked healthcare databases in Alberta, Canada to study follow-up care and outcomes of living kidney donors who underwent nephrectomy between 2002 and 2013. We compared donors with and without early guideline-concordant care, defined as annual physician visit, serum creatinine, and albuminuria measurement for the first two years postdonation. The primary outcome was continued annual follow-up at 5 and 10 years (adjusted odds ratio with 95% confidence interval, aOR [LCL,UCL]).

Secondary outcomes included mean change in estimated glomerular filtration rate over time (eGFR [LCL,UCL]) and rates of all-cause hospitalization (adjusted rate ratio, aRR [LCL,UCL]).

Results: Our study included 460 living kidney donors, of whom 187 (41%) had early-guideline concordant follow-up. Over a median follow-up of 10 years, the odds of having annual follow-up for donors without early guideline-concordant care were 76% lower at 5 years (aOR 0.24 [0.18,0.32]) and 68% lower at 10 years (aOR 0.32 [0.23,0.46]) compared to donors with early care. The odds of continuing follow-up remained stable over time for both groups. From 2.5 years postdonation onwards, the eGFR increased slightly over time for donors with early follow-up care (0.34 [0.09,0.58] mL/min/1.73m2 per year) and without early follow-up care (0.20 [-0.03,0.42] mL/min/1.73m2 per year), although the latter was not statistically significant. Hospitalization rates were similar between the two groups (aRR 1.19 [0.77,1.84]).

Conclusion: Early guideline-concordant follow-up care is associated with improved subsequent follow-up but does not have a significant impact on eGFR and hospitalization rates. Therefore, mandating early follow-up could serve as a useful policy to encourage continued follow-up, but may not sufficiently mitigate long-term risks.

Abstract 6

Presenting Author: Araz Kouyoumdjian **Institution:** McGill University

Abstract Title: Pretransplant recipient circulating T regulatory cell TNFR2 expression predicts long term outcomes after kidney transplantation

Abstract Body:

Background
Long-term graft function markers after kidney transplantation could improve graft allocation strategies. We previously associated levels of pretransplant recipient TNFR2 expression on circulating T regulatory cells (Treg) with short and medium-term function following deceased donor kidney transplantation. Increased TNFR2 expression in this T-cell subset strongly predicted immediate graft function. This study aims to characterize long-term outcomes of this cohort based on pretransplant TNFR2 expression.

Methods
We conducted a 10-year update of the prospective cohort used in previously published data. 72 of the 76 recipients were included as four were lost to follow-up. Thirty patients were included in the high-TNFR2 (H-T2) group versus 42 in the low TNFR2 group. TNFR2 grouping was based on an optimal cut-off value of 4.2 as determined in the previous ROC analysis. Outcomes include: graft status, cause of failure, biopsy-proven rejection during 10-year follow-up, de novo donor specific antibody (DSA) detection, death, and graft status at death. For multivariable logistic regression analysis (MVA) we included: delayed graft function, acute kidney injury (slow and delayed graft function), donor age, cold ischemia time, and expanded criteria donor.

Results
Kaplan-Meier analysis revealed better 5-year death censored graft survival in the H-T2 group (97% vs. 78%, p=0.024) and better 10-year patient and death censored graft survival in the H-T2 group (75% vs. 42%, p=0.012; 81% vs. 58%, p=0.02 respectively). Lower rate of de novo DSA production was observed in the H-T2 group (0% vs. 14.3%, X2=4.67, p=0.03). No statistically significant association was seen between TNFR2 expression and rejection. MVA demonstrated pre-transplant H-T2 expression decreases long-term death risk (OR 3.75, 95%CI 1.19-11.71, p=0.02).

Conclusion
Pre-transplant circulating Tregs expressing high levels of TNFR2 is associated with long-term graft and patient survival. This may improve risk stratification in kidney transplant candidates and lead to mechanistic insights for improving long-term outcomes.

Abstract 7

Presenting Author: Araz Kouyoumdjian **Institution:** McGill University

Abstract Title: Recipient outcomes after kidney and liver transplantation from MAiD organ donation

Abstract Body:

Background
After the adoption of ''Death with Dignity'' Legislation in June 2014, organ donation following medical assistance in dying (MAiD) began in Quebec. This donation type has previously been reported in Belgium and the Netherlands. While MAiD donations continue to increase, there remains paucity of outcome data. This study aims to compare recipient outcomes between MAiD and donation after circulatory death (DCD) for kidney and liver transplants.

Methods
A retrospective study of patients receiving kidney or liver transplant recovered from MAiD or DCD donation was performed. Kidney transplant recipients were matched 1:2 (MAiD to DCD ratio) from 2016-2021. Liver transplant recipients were matched 1:1 (MAiD to DCD ratio) from 2017-2021. Multivariable logistic regression analysis (MVA) was performed for delayed graft function (DGF) and included the following variables: MAiD-DCD status, cold ischemia time, and donor age. Statistical analysis performed with SPSS 27.

Results
26 liver transplantations (13 MAiD, 13 DCD) were included. Donor and recipient ages were both lower in DCD group (p=0.01 and 0.04 respectively). Kaplan-Meier survival analysis of overall survival and graft survival were not statistically significant different between groups. There was no statistically significant difference regarding stricture rates (X2=0.72, p=0.39).
92 kidney transplantations (24 MAiD, 68 DCD) were included. Donor and recipient ages were both lower in DCD group (p=0.00 and 0.03 respectively). Kaplan-Meier survival analysis of

overall survival and graft survival showed no statistically significant difference. MVA demonstrated that both MAiD donation and lower cold ischemia times decreased the incidence of DGF (OR 28.81, 95% CI 4.9-168.7, p=0.00 and OR 1.07, 95% CI 1.01-1.14, p=0.03 respectively).

Conclusion
Kidney transplantation after MAiD is associated with decreased incidence of DGF. Liver transplant outcomes did not differ statistically between MAiD and DCD donation. This supports the continued use of MAiD donors in kidney and liver transplantation with prospective outcome assessment.

Abstract 8

Presenting Author: Ariana Noel **Institution:** University of Ottawa

Abstract Title: Defining the living donor evaluation process for optimization of a one-day evaluation program

Abstract Body:

Background: Living donor transplantation provides patients with end stage kidney disease increased longevity and quality of life compared with dialysis. The donor evaluation process can be inefficient and costly for patients and the health care system. There is a paucity of research on evaluation process optimization in living kidney transplantation. We investigated our living donor evaluation process to develop a one-day evaluation program, improving program efficiency.

Methods: Living donor staff and patient partner from The Ottawa Hospital Living Donor program participated in individual, semi-structured interviews to develop a Lucidchart process map of the donor evaluation process and ascertain the time associated with each step. A one-day evaluation program model was developed based on our process map and interview participant feedback. Amount of time for each step of the process was collected for future cost assessment.

Results: Mean time to complete the evaluation process and reach donor approval is 9 months. The donor evaluation process can be divided into 3 phases: Initial Interview, Phase I, and Phase II. Phase I requires the most nursing and administrative time. The greatest barriers to process efficiency are 24-hour urine collections to estimate kidney function and coordinator time spent on correspondence with laboratories. A one-day evaluation will reduce the evaluation process and approval to approximately 4 weeks. Greatest barriers for patients included need for increased education and time off work. Next steps will include cost estimates of the current program with the goal of implementing a one-day evaluation program at The Ottawa Hospital.

Conclusion: A one-day evaluation program will increase the efficiency of the living donor process for donors, coordinators, and recipients. Phase I investigations are a barrier to program efficiency and can be streamlined with a one-day evaluation. The development of donor educational resources will improve the donation experience for patients.

Abstract 9

Presenting Author: Bronte Anderson **Institution:** University Health Network

Abstract Title: Surgical complications among living kidney donors post-nephrectomy: preliminary findings from a single-centre observational study

Abstract Body:

Background: Living donor kidney transplantation is the optimal treatment for end-stage kidney disease. However, surgical complications (SC) post-nephrectomy are known to occur in living kidney donors. We aimed to describe the incidence and characteristics of post-nephrectomy SCs in a contemporary cohort of Canadian living kidney donors to guide risk discussions and post-donation care in this population.
Methods: An observational study to answer the following question: What are the rates and characteristics of surgical complications post-nephrectomy in a contemporary cohort of living kidney donors? We included adult patients (≥18 years) who donated at a single Canadian centre between January 1, 2006 and December 31, 2017. We defined a major SC as an infection, thrombus, pneumothorax, or bleeding requiring an intervention. All other complications were deemed minor.
Results: A total of 823 donors were included, and 60% were female. Overall, 3.7% of donors experienced a major SC, and 4% experienced a minor SC. Of the major SCs, infections were the most common (66.7%) with urinary tract infection being the most common infection. Deep vein thrombosis, pneumothorax and bleeding requiring intervention occurred in less than 0.5% of donors respectively. Local skin reactions (rash, blistering at incision site) were the most common minor complication. The rates of major and minor SCs were both slightly higher among females than males (4.3% vs. 2.7% and 4.5% vs. 3.3%, respectively). There was no significant increase in complication rate among older donors (>65 years). The median time from donation to first SC was nine days.
Conclusions: The rate of SCs among living kidney donors in our large contemporary cohort is generally low. Additional analyses will compare SC rates between surgical technique (laparoscopic vs. open), ethnicity, left vs. right nephrectomy, and Body Mass Index groups. Results will have implications for living donor care, risk communication, and program performance evaluation.

Abstract 10

Presenting Author: Christina Lam **Institution:** University Health Network

Abstract Title: The Fibrinogen-like Protein 2 Molecule Influences the Development of Thymic Regulatory T-cells

Abstract Body:

Transplantation is the primary treatment for patients with end-stage organ failure. However, long-term outcomes are limited by immunosuppressant toxicities and chronic graft rejection.

Identifying factors involved in regulatory T cell (Treg, CD4+ CD25+ FOXP3+) development and commitment is required for realization of their therapeutic potential in solid organ transplantation.

Fibrinogen-like protein 2 (Fgl2)-deficient Tregs are functionally defective, so we tested the hypothesis that Fgl2 is required for normal thymic Treg development.
We first generated reciprocal Fgl2 bone marrow chimeras by reconstituting B6 CD45.1 or CD45.2 female mice with bone marrow stem cells from either Fgl2-/- (KO) or Fgl2+/+ (WT) mice, producing WT->KO and KO->WT chimeras and corresponding KO->KO and WT->WT controls (Fig.1A). Reconstitution was monitored by monthly tail bleed. Once the reconstitution reached ≥90%, plasma, spleens and thymi were collected. We analyzed the plasma using ELISA for FGL2 and thymocytes with flow cytometry.
WT->KO chimeras had a faster rate of reconstitution than WT->WT chimeras. Analysis of thymocyte developmental stages revealed no significant differences between the groups. Thymi from KO->WT chimeras had a significantly lower number of donor-derived Tregs while thymic Tregs were present in higher numbers in KO->KO and WT->KO chimeras (Fig.1B). PD-L1 expression differed dramatically among the groups, with KO->WT and WT->KO chimeras exhibiting an elevated percentage and absolute number of PD-L1+ cells compared with the other chimeras (Fig.1C-D). No differences were observed in GITR, TIGIT, LAG3, or PD-1 expression on thymic Tregs from the different groups. Lastly, there were no significant differences in Fgl2 plasma levels between the different chimeras.
Our results indicate that circulating Fgl2 is derived from a radioresistant source and influences the rate of T cell reconstitution. Both radiosensitive and radioresistant sources of Fgl2 affect thymic Treg expression of PD-L1, an important molecule for Treg function. In future work we will examine how Fgl2 modulates Treg maturation, function and phenotype in the steady state and upon activation

Abstract 11

Presenting Author: Christine Wardell **Institution:** BC Children's Hospital

Abstract Title: Investigation of bystander suppression potential by chimeric antigen receptor regulatory T cells in NOD mice

Abstract Body:

Background
Type 1 diabetes (T1D) is an autoimmune disease driven by T cells that kill the insulin-producing cells of the pancreatic islets. As a result, patients with T1D lack the ability to control their blood sugar. Islet transplantation can treat these patients; however, transplanted islets are subject to destruction by (1) pre-existing autoreactive T cells that detect islet proteins, and (2) alloreactive T cells that recognize the graft as foreign. Regulatory T cells (Tregs) can suppress auto- and allo-reactive T cells that have either the same or distinct antigen specificities. We hypothesize that by endowing Tregs with a chimeric antigen receptor (CAR) that detects MHC class I, a prominent alloantigen on transplanted islets, CAR Tregs will prevent graft rejection via

suppression of alloreactive T cells and bystander suppression of autoreactive T cells.

Methods
We performed in vitro suppression assays using cells from the non-obese diabetic (NOD) mouse. Autoreactive CD4+ T cells were co-incubated with HLA-A2+ antigen presenting cells (APCs) loaded with a diabetogenic peptide that induced antigen-specific T cell proliferation. HLA-A2-CAR+ Tregs were titrated in to assess their ability to inhibit autoreactive T cell proliferation.

Results
HLA-A2-CAR NOD Tregs significantly reduced expression of co-stimulatory molecules (e.g. CD80, CD40) on HLA-A2+ APCs. However, HLA-A2-CAR NOD Tregs suppressed autoreactive T cell proliferation less than non-antigen specific Tregs. Interestingly, we found that the HLA-A2-CAR Tregs themselves became positive for a number of co-stimulatory molecules, especially CD40.

Conclusion
In vitro, HLA-A2-CAR+ NOD Tregs mediate antigen-specific APC suppression, but fail to suppress autoreactive T cell proliferation. This lack of bystander suppression may be due to NOD Treg acquisition of CD40 and resultant APC-like potential to stimulate, rather than suppress, autoreactive T cells. We will continue to investigate this phenomenon, as well as the impact of HLA-A2-CAR Tregs in allogeneic islet transplants in vivo.

Abstract 12

Presenting Author: Cindy Luo **Institution:** Vancouver General Hospital

Abstract Title: Genotype-guided voriconazole prescribing in lung transplant recipients

Abstract Body:

Background:
Voriconazole (VRC) is the treatment of choice for Aspergillus in lung transplant recipients. VRC undergoes metabolism via CYP2C19, a polymorphic enzyme that has varying metabolic activity. Patients with either CYP2C19 ultrarapid metabolizer (URM) or rapid metabolizer (RM) phenotypes are less likely to achieve therapeutic VRC levels, which is predictive of treatment failure. Determining CYP2C19 variations can help tailor VRC therapy for lung transplant recipients.

Methods:
This prospective cohort study included lung transplant recipients who received VRC between January 1, 2016, to November 30, 2019. Participants were excluded if they did not read or speak English, did not have access to email or internet, and did not provide consent to pharmacogenomic testing. The frequency of various CYP2C19 genotypes in this cohort was identified.

Results:

Forty-three VRC exposures occurred in 34 participants who completed pharmacogenomic testing. Twenty-one percent (7/34) had URM or RM phenotypes, 74% (25/34) had normal (NM) or intermediate (IM) metabolizer phenotypes, and 6% (2/34) had poor metabolizer (PM) phenotype. Participants with URM or RM phenotypes required an average of 40 days to reach first therapeutic VRC levels, compared to 13 days and 9 days in the NM or IM and PM phenotypes, respectively. Eight cystic fibrosis participants were included in this cohort. Cystic fibrosis participants with URM or RM phenotypes required 77 days to reach first therapeutic VRC levels, while NM or IM and PM phenotypes required 27 days and 14 days, respectively.

Conclusion:
The time required to achieve therapeutic VRC levels was widely variable based on CYP2C19 genotype and the corresponding phenotype in our study cohort. Participants with URM or RM phenotypes are at high risk for treatment failure due to prolonged time to therapeutic VRC levels. CYP2C19 polymorphism may further reduce likelihood of achieving target VRC levels in cystic fibrosis patients.

Abstract 13

Presenting Author: Danielle **Institution:** The University of Calgary

Abstract Title: Public Perceptions of Presumed Consent for Organ Donation in Canada: A Qualitative Descriptive Study of Public Comments from News Articles

Abstract Body:

Background: In 2019, two Canadian provinces (Alberta and Nova Scotia) became the first jurisdictions in North America to pass presumed consent legislation to increase deceased donor organ transplantation. Under this law, adults will be presumed to consent to organ donation unless they register an opt-out decision. Public trust and support for this legislation is critical to its success.

Methods: We performed a qualitative descriptive study to explore public perceptions and perceived implications of the presumed consent legislation for organ donation in Canada. We extracted public comments from online articles published by four major Canadian news outlets about the presumed consent legislation from January 2019 to July 2020. Comments were independently analyzed by two authors using a conventional content analysis approach (i.e., coding and grouping similar concepts and developing themes).

Results: We identified 180 news articles; 35 were eligible for study inclusion and contained a total of 4,357 comments for data analysis. Three primary themes emerged: perceived positive implications of the legislation, perceived negative implications of the legislation, and concerns to address. The perceived positive implications of the legislation were that it: a) aligned with the views of the majority of Canadians, b) would have a positive societal impact, and c) was an effective solution. The perceived negative implications of the legislation were that it: a) violated personal rights, b) had the potential for abuse, and c) could lead down a slippery slope.

Improving government transparency and communication, clarifying questions and concerns, and providing evidence for the legislation were identified as key concerns that need to be addressed prior to implementation.

Conclusion: If the presumed consent legislation is meant to increase organ donation and transplantation, public support will be important to ensure successful implementation. Lawmakers should address public concerns prior to implementation.

Abstract 14

Presenting Author: Faisal Jarrar **Institution:** Dalhousie Medicine

Abstract Title: Obesity Impacts the Relationship between Donor-Recipient Weight Mismatch and the Risk of Graft Loss After Kidney Transplantation

Abstract Body:

Background:
Donor-recipient (DR) weight mismatch is known to be a risk for graft failure after kidney transplantation,1 however the impact of donor and/or recipient obesity on this relationship remains unexplored. Herein, we examine whether DR obesity status impacts the known effects of DR weight mismatch on graft survival.

Methods:
We used the SRTR to identify recipients of a kidney transplant (live or deceased) from January 2000-December 2016. We categorized DR absolute weight difference as >30 kg, 10-30 kg (D<R; D>R) and <10 kg (D=R), and separately dichotomized DR obesity status at a BMI cut point of 30 kg/m2 to identify four DR obesity pairings: i. non-obese DR (NOD-NOR), ii. obese donor-non obese recipient (OD-NOR), iii. non obese donor-obese recipient (NOD-OR), and iv. obese DR (OD-OR). Using multivariable Cox proportional hazards models, we determined the relative hazard ratio for each DR weight mismatch category for the outcome of death-censored graft loss (DCGL), stratified by DR obesity status.

Results:
153,737 transplant recipients were included in our analysis; 19.6% developed DCGL. Mean donor and recipient BMI was 27.1±6.0 and 27.7±5.6, respectively. Amongst all patients (irrespective of DR obesity pairing), D>R was protective against DCGL (HR 0.95, 95% CI 0.91-0.99) and D<R was a risk factor for DCGL (HR 1.28, 95% CI 1.24-1.33) versus no weight difference (Table 1). In NOD-NOR, D>R was even more protective (HR 0.85, 95% CI 0.79-0.92) and D<R even higher risk (HR 1.41, 95% CI 1.32-1.51) versus no weight difference. For OD-OR, weight pairing was not associated with risk of DCGL.

Conclusion:
The effect of DR weight pairing is exaggerated when neither the donor nor recipient is obese and is abolished when both the donor and recipient are obese. This supports the nephron

underdosing hypothesis and the known association of lean body mass with nephron load.

References:
1. Miller AJ, Kiberd BA, Alwayn IP, Odutayo A, Tennankore KK. Donor-recipient weight and sex mismatch and the risk of graft loss in renal transplantation. Clin J Am Soc Nephrol. 2017;12:669-676.

Abstract 15

Presenting Author: Fernanda Onofrio **Institution:** University of Toronto

Abstract Title: Evaluating the clinical course of patients with PSC assessed and listed for liver transplantation: a single-centre retrospective Canadian study

Abstract Body:

Background: Patients with primary sclerosing cholangitis (PSC) are waitlisted for liver transplant (LT) according to the MELD-Na score, which may not best reflect individual disease impact. We sought to analyse the clinical course for patients with PSC once referred for LT, in a mixed deceased/live donor transplant programme. Methods: A retrospective cohort study from November 2012 to December 2019 including all patients with PSC referred for assessment at Toronto General Hospital Liver Transplant Clinic. Patients who required multiorgan transplant or re-transplantation were excluded. Liver symptoms, hepatobiliary malignancy, MELD-Na progression, and death were assessed. Competing Risk analysis was used for timing of LT versus presence of potential living donor (pLD), type of transplant, and death. Results: In total, 172 PSC patients were assessed, 144/172 (84%) were waitlisted, and 106/144 (74%) were transplanted. Exception points were granted to 13 (7.5%) patients and 12 patients are currently waiting. During follow-up (9.1 years), 26/144 (18%) were removed from the waitlist due to ongoing infection, clinical deterioration, liver-related mortality, new cancer (including 3 patients with cholangiocarcinoma). Comparing patients who received exception points with those who did not, they showed longer time to death: 699 vs 58 days p=0.03 and longer time to transplant (median 235 vs 122 days p=0.03). Waitlist mortality was 12% (17/144) compared to 50% (14/28) mortality rate over follow up for those patients who were never listed (p<0.001). 118/144 (81.95%) had a pLD at listing, of whom 94 were transplanted: 64 living donor LT (LDLT) and 30 deceased donor LT. Overall mortality was 79% lower in patients with a pLD (p<0.001) (Figure 1). Conclusion: Transplantation rate was high among waitlisted patients, however only a minority of patients were granted exception points. PSC patients who had a pLD at listing had lower mortality. The majority of PSC transplanted patients underwent LDLT; this appears to be indirect evidence of patients and clinicians recognising that the current MELD-Na allocation system does not accurately reflect their degree of illness/clinical need.

Abstract 16

Presenting Author: Ghazaleh Ahmadzadeh **Institution:** UHN, Toronto, Canada

Abstract Title: Fears associated with living donor kidney transplantation among ACB kidney transplant recipients and candidates in Toronto, Ontario – a qualitative analysis.

Abstract Body:

Background: Canadian data suggests patients of African, Caribbean, and Black (ACB) descent with kidney failure are 60-70% less likely to receive living donor kidney transplant (LDKT) compared to White patients. In order to provide appropriate support for ACB patients to explore all treatment options for kidney failure, we need to identify barriers faced by this population. In this qualitative analysis we aimed to understand the fears associated with LDKT among ACB kidney transplant recipients and candidates in Toronto, Ontario.

Methods: Using purposive sampling we recruited self-identified ACB adult (≥18 years) kidney recipient and transplant candidates to participate in nine semi-structured interviews between August 2020 and March 2021. We excluded patients who were not fluent in English or were cognitively impaired. Interviews were conducted via telephone or MS Teams. Participants were asked open-ended questions about their racial/ethnic identities, medical experiences, and perspectives on kidney disease and LDKT. Interviews were audio-recorded and transcribed verbatim. Data were analyzed via thematic analysis and using tenets of Critical Race Theory.

Results: We interviewed 10 participants (age: 21-69, 6/10 Female). “Fear” was a major theme identified in this analysis. The emerging sub-themes were: fear of graft rejection which elicited further concerns regarding negative health outcomes; fear of financial difficulties which was associated with employment insecurity post-transplant and expenses related to transplantation; fear of judgement from within and outside the community; and fear stemming from unfamiliarity and discomfort with the transplant process.

Conclusion: ACB kidney transplant recipients and candidates’ perspectives and attitudes about LDKT are complex. Further investigation is required to develop a deeper understanding of how fear shapes their exploration and pursuit of LDKT. This understanding then can be used to co-develop, with ACB communities, potential interventions to allow ACB patients with kidney failure to explore LDKT as a potential treatment option.

Abstract 17

Presenting Author: Goodness Madu **Institution:** University Health Network

Abstract Title: Isolation and characterization of extracellular vesicles from ex vivo perfused human lungs and their relationship with allograft injury

Abstract Body:

Background: Primary graft dysfunction (PGD) is an important cause of morbidity and mortality following lung transplantation and results in part from injuries sustained in the donor. Extracellular vesicles (EVs), small membrane-bound sacs released by cells, are increasingly being recognized as key modulators of inflammation. EVs have been implicated in the anti-donor response to the lung allograft and may play a role in the pathogenesis of PGD. Perfusate from ex-vivo lung perfusion (EVLP) allows interrogation of donor EVs which may serve as non-invasive, predictive biomarkers for lung injury. In this study, we aim to identify and characterize EVs derived from perfusates of marginal donor lungs.
Method: Pre-transplant clinical perfusate samples of lungs undergoing EVLP were collected, precleared, and ultracentrifuged at 100,000xg for 90mins to isolate small EVs. The presence of EVs was validated by Nanoparticle tracking analysis (NTA), Western blot (WB), and flow cytometry (FACS). Next, EV protein arrays were used to investigate differences in protein content between lungs accepted for transplant (n=20), and injured lungs declined for transplant (n=20).
Results: NTA showed the presence of EV-sized particles (≤300nm) at high concentrations (10^11 particles/mL). The canonical EV markers, CD9, CD81 and CD63 were identifiable by WB and/or FACS (fig 1&2). Using EV arrays, CD63 and CD31, an endothelial adhesion marker, were found to be elevated in EVs from damaged lungs declined for transplantation (p=0.0183; p=0.0167). There was no difference observed in levels of EV-associated CD9 (fig 3).
Conclusion: Clinical EVLP perfusates contain donor-derived lung EVs as confirmed by NTA, WB, FACS, and EV arrays. CD31+ EVs may reflect damage in lungs declined for transplantation. Next, we aim to characterize the RNA cargo of EVLP-derived EVs acquired from the same cohort, to determine whether differences can be observed at the transcript level. Together, these findings will provide an insight to the potential role of EVs as biomarkers for lung injury.

Abstract 18

Presenting Author: Hassina Mohammed **Institution:** Eric Williams Medical Sciences

Abstract Title: Knowledge and Attitude towards Organ Donation in a Caribbean island

Abstract Body:

ABSTRACT

The Knowledge and Attitude towards Organ Donation in a Caribbean Island.

Background
The impact of transplantation on healthcare is influenced by the degree of public acceptance of organ donation. Increased positive public knowledge modifies the attitude of donor relatives to the donation process and decreases refusal rates. The success of any programme is dependent on accurate information being provided to the public to improve knowledge and increase the number of available organs for transplantation.

Methods
This was a descriptive study using a de novo questionnaire to evaluate the knowledge and

attitude of the population and the impact of religion on organ donation in Trinidad and Tobago.

Results
Of the 635 participants, 56% did not hear about organ donation in the previous 12 months. Despite the lack of public awareness, 81.4% of the population supported organ donation but only 4.7% were registered donors while 39.3% were unaware of a donor registry. 87.8% of healthcare professionals supported organ donation while 10.5% remained undecided. There was a statistically significant association between the belief that organ donation was against their religion and support for organ donation (p=0.000). The Muslim faith had the least number of supporters (70.9%) while the Jehovah's Witness had the most undecided (28%). The main reason for not supporting organ donation was never thought of it (31%) while solidarity (51%) and reciprocity (26%) were the main reasons for support.

Conclusion
The general population has limited public awareness of organ donation and the programme in Trinidad and Tobago. Public campaigns and the inclusion of inter-religious groups and community leaders are priorities to promote a positive public knowledge of organ donation and educate the public of available treatment options including transplant for life saving procedures with and improved quality of life.

Abstract 19

Presenting Author: Hassina Mohammed **Institution:** Eric Williams Medical Sciences

Abstract Title: Organ donation in a developing Caribbean country: a single centre experience in Trinidad and Tobago

Abstract Body:

Background
Patients diagnosed with end stage organ failure often benefit from organ transplantation, however, the global shortage of available organs for transplant is unable to meet the demand. In Trinidad and Tobago, Chronic Kidney Disease is the fourth leading cause of death with an estimated 1,800 patients receiving dialysis. The National Organ Transplant Unit (NOTU) was established in 2006 with the aim of providing renal and corneal transplants services. This study assessed the current state of NOTU and the organ donation experience at a single center intensive care unit in Trinidad.
Methods
A review of legal, human and material resources and a retrospective chart review of the current status of organ donation and transplantation in Trinidad and Tobago was conducted. Data were collected from medical records of deceased donors for the period January 2006 to December 2020. The organ donor experience in the Adult Intensive Care Unit at a tertiary care hospital in Trinidad was also evaluated. Data were collected from medical records of all patients in the adult intensive care unit for the period October 2016 to December 2016.
Results

Trinidad and Tobago has 4 donor hospitals, 1 transplant center, 1 surgical team consisting of 3 surgeons, approximately 100 trained Transplant Procurement Managers and 1 trained laboratory technician. There was a total of 27 donors after brain death (DBD) with the first actual deceased donation occurring in 2007. During the period January 1st 2006 to December 31st 2020, there were 195 renal transplants performed. Of these, 46 transplants were from DBD donors. The deceased donation rate was 0.77 donor pmp in 2006, peaked in 2014 at 3.85 and then remained at 1.54 donor pmp. Donor potentiality for the adult intensive care unit was 66.7% with a donation rate of 5.3%.
Conclusions
Organ donation in Trinidad and Tobago mostly relies on living donors. Despite recent increases in donation rates and donor conversion index, there remains a significant discrepancy between the donation potentiality and donation rate. The implementation of a taskforce dedicated to improving organ donation may assist in achieving self-sufficiency.

Abstract 20

Presenting Author: Heidi Joyce **Institution:** University of Alberta

Abstract Title: Acute Lung Injury in Interstitial Lung Disease is not associated with Post-Transplant Survival

Abstract Body:

Introduction: Interstitial lung diseases (ILD) are progressive and unpredictable; ILD patients may develop acute lung injury (ALI) during exacerbations, resulting in increased mortality. Lung transplantation provides improved survival and quality of life in ILD patients, although it is unknown whether patients transplanted with features of ALI on explant pathology have worse survival due to active inflammation and aggressive clinical deterioration.

Methods: We performed a single center retrospective cohort study of 266 adult lung transplant recipients transplanted for ILD from January 1, 2006 to December 31, 2019, identifying those with features of ALI (diffuse alveolar damage, organizing pneumonia, hyaline membranes, hemorrhage, edema) on explant pathology. We used multivariable Cox regression to evaluate the association with post-transplant survival, comparing individuals with and without features of ALI. Age and sex were added to each model a priori; other risk factors were added based on univariable analysis.

Results: Of this cohort, 78% were male, with a median age of 59 (IQR 26.8-70) years, and 68% were diagnosed with idiopathic pulmonary fibrosis. 39/266 patients (14.7%) had ALI at time of transplant. 29.7% recipients with ALI required extra-corporeal life support (ECLS) (n=13) and/or invasive ventilation (n=15) pre-transplant compared to 7.4% without ALI ($p<0.001$). Patients with ALI were more likely to require pre-transplant hospitalization (56.8% vs. 15.3%, $p<0.001$). ICU and post-transplant length of stay were similar between both groups. There was no association between ALI status and post-transplant survival (HR 1.73 (95% CI 0.97-3.08), $p=0.06$) after adjusting for age, sex, intra-operative circulatory support, recipient body mass

index, transplant era, and ventilation or ECLS bridge to transplant.

Conclusions: ALI on explant pathology was not associated with post-transplant survival. Further investigation is required to determine whether ALI increases risk of adverse outcomes like primary graft dysfunction and chronic lung allograft dysfunction.

Abstract 21

Presenting Author: James Kiberd **Institution:** University of Calgary

Abstract Title: PPI Use in Kidney Transplant Recipients: A Population-Based Study

Abstract Body:

Background: Kidney transplant recipients are commonly prescribed proton pump inhibitors (PPIs), but due to concerns of long-term adverse events, chronic use should be limited. To better inform potential deprescribing initiatives, we performed a retrospective population-based study to describe ongoing PPI use in kidney transplant recipients beyond their first year of transplant. Methods: We used linked healthcare databases in Alberta, Canada to study PPI use in prevalent adult kidney-only transplant recipients (2008-2017) who were at least 1-year post-transplant. We compared recipients with evidence of a PPI prescription fill in the 3 months prior to and including the index date to those with a H2Ra fill and those with neither. The primary outcome was ongoing or new PPI use and patterns of use, including frequency and duration of therapy. Results: Our study included 1,823 kidney transplant recipients, of whom 868 (48%) were on a PPI, 215 (12%) were on a H2Ra, and 740 (41%) were on neither therapy at their index date. Those on PPI were more co-morbid at baseline compared to those on H2Ra or neither therapy. Over a median follow-up of 5.4 years (interquartile range, IQR, 2.6-9.3), the PPI group were more likely to fill subsequent PPI prescriptions compared to the H2Ra or neither group (median number of PPI prescriptions in follow-up: 24 vs. 0 vs. 0, respectively). The PPI group spent a median of 90% (IQR 64-98) of their follow-up time on a PPI (compared to 0% for the H2Ra and neither group). Based on almost 45,000 PPI prescriptions in follow-up (PPI vs. H2Ra vs. neither: 35,730 vs. 1,208 vs. 7,979), the most commonly prescribed PPI was pantoprazole and the majority were prescribed by nephrologists, followed family doctors. Conclusions: Almost half of kidney transplant recipients are on a PPI at or beyond the 1-year post-transplant date and these recipients spend the majority of their follow-up continuing on a PPI.

Abstract 22

Presenting Author: Jenny Tran **Institution:** University of British Columbia

Abstract Title: Donor-Recipient Epitope Mismatches at HLA-DR and -DQ Loci Predict de novo Donor Specific Antibody Formation in Renal Transplantation

Abstract Body:

Background: The Genome Canada Transplant Consortium have shown in precision medicine simulation models that prospective use of donor/recipient epitope-matching offers a practical strategy to minimize graft immunogenicity in Canada. Here we confirm in a large-scale longitudinal real-world Canadian transplant population that the eplet-mismatch primarily at HLA-DR and -DQ is related to the development of de novo donor-specific antibody (dnDSA) to these epitopes.

Methods: A total of 1155 deceased-donor renal graft recipients transplanted sequentially from January 2008 to December 2018 were followed until December 2019. Next-generation sequencing was performed on all 11 HLA genes for each pair and their eplet-mismatches determined at each locus and overall using HLAMatchmakerV2. Peri- and post-transplant management was standardized, and post-transplant dnDSA monitoring was performed for-cause using OneLambda class I and II Single-Antigen Bead panels.

Results: Kaplan-Meier survival curves for dnDSA-free survival were compared using the log-rank test. As anticipated, dnDSA were not observed at any locus where pairs exhibited antigen-identity at that locus. In terms of epitope-mismatch, only HLA-DR and -DQ loci were significantly associated with freedom from dnDSA. For HLA-DRB, a total mismatch score <17 and an antibody-verified score <7 predicted freedom from dnDSA while for HLA-DQ, total and antibody-verified eplet mismatches categorized by quartiles, and by a total mismatch score of <12 and antibody-verified score of <6 were significantly associated with dnDSA (Fig1). Multivariate analysis of epitope match at DQ and DR showed strong associations with freedom from dnDSA formation (DQ, HR 1.0977; 95% CI (1.0327-1.1668)) DR (HR: 1.0602) 95% CI (1.0149-1.1074) p<0.01).

Conclusions: Eplet-matching for class II HLA-DR and -DQ loci is associated with a significantly reduced risk of dnDSA. These results support the clinical benefit of eplet-matching described by Wiebe et al., in a large real-world Canadian transplant cohort when post-transplant testing was performed for-cause.

Abstract 23

Presenting Author: Juliano Chrystian Mello Offerni **Institution:** transplant clinical fellow

Abstract Title: IMPACT OF GASTRODUODENAL ARTERY RECONSTRUCTION IN PREVENTION OF DUODENAL LEAKS AFTER SIMULTANEOUS PANCREAS-KIDNEYTRANSPLANTATION

Abstract Body:

Background:
Type 1 diabetes (DM1) represents major proportion of global healthcare expenditure. Whole pancreas transplantation provides durable glycemic control and can improve survival in this patient group. This procedure carries a substantial surgical complication profile. Leaks from the transplanted duodenum (DL), occurring in approximately 5-10% of cases, represent a potentially life-threatening complication. The gastroduodenal artery (GDA) supplies blood to both the duodenum and pancreatic head but is commonly ligated during retrieval. GDA

reconstruction has been suggested as one way to reduce DL. We aimed to determine whether GDA reconstruction resulted in a reduction in DL in patients undergoing simultaneous pancreas kidney transplantation (SPK).
Methods:
A retrospective review of adult patients who underwent SPK transplant at our center between January 2016 and March 2021 was performed. Recipients were compared with respect to recipient and donor age, sex, BMI, cold and warm pancreas ischemia time, biochemical markers, duodenal leak, pancreatic leak, post-operative need for laparotomy, intra- and post-operative blood transfusion, abdominal infection, length of stay in hospital, intraoperative donor duodenum and recipient bowel O2 tissue saturation, and graft loss. Data were analyzed using Pearson's chi-square test, Welch's two sample t-test, and multivariate regression modelling.
Results: We identified 47 SPK recipients; 14 recipients had GDA reconstruction (GDA+) and 31 recipients underwent GDA ligation (GDA-). The two groups were evenly balanced with respect to demographics. There was no difference in postoperative complications or incidence of DL. Multivariable regression modelling did not identify any significant differences between groups. There was a trend towards higher O2 saturation in the donor duodenum in the GDA+ group but this was not statistically significant.
Conclusion:
While there are theoretical benefits with GDA reconstruction on pancreas transplantation, this small retrospective study did not demonstrate any differences in the parameters studied including. Further study with a larger sample size is warranted.

Abstract 24

Presenting Author: Karen Sherwood **Institution:** UBC

Abstract Title: Multi-Omics Integration of Immunophenotyping and Bioenergetics Data Allows for More Precise Biomarkers and Unveils Novel Biological Associations in a Uremic Cohort

Abstract Body:

Advanced -omics technologies allow researchers to assess complex biological changes from a much more comprehensive perspective and to develop increasingly precise biomarkers for a given disease. Uremia is an abnormal physiological state associated with chronic kidney disease and is associated with cellular subtype fluctuations. Metabolic reprogramming influences immune cell function and the profiling of immune-metabolism may act as both an indicator of immune cell fate, function and fitness. In this study, we combine immunophenotypic and immune metabolic profiling to compare uremic patients and healthy controls.
Methods
Flow cytometric immunophenotyping panels for CD4-, CD8-, B-, NK-cells, and monocytes were run on freshly isolated PBMCs of a cohort of 35 uremic patients and 18 healthy controls. Magnetically isolated T lymphocytes of a subset of the same cohort were analyzed using a Seahorse XF Analyzer to determine bioenergetics parameters. Immunophenotypic and bioenergetics data were analyzed using a custom R/Bioconductor pipeline. p values were

calculated using linear regression models and confounder adjusted by age, biological sex, race and BMI.

Results

The basal respiration, glycolytic - and mitochondrial ATP production were all reduced in the pre-transplant (uremic) cohort (Fig 1a), indicating that the uremic T cells are less metabolically active. Immunophenotyping of the same cohort revealed various subpopulations and functional markers that were perturbed between two cohorts, for example, CD134 (OX40) expression on CD8 T lymphocytes (Fig 1b). Correlation analysis of this cytometric signature with the T-lymphocyte bioenergetics profiles revealed several interesting relationships such as a strong negative association ($p = 0.014$) between expression of CD134 and the mitoATP production of T lymphocytes (Fig 1c). This approach was tested for our full panel of markers.

Conclusions

Combining multi-omics data allow us to develop biomarkers with a precision that could not be achieved using a single platform alone and additionally can be used as a hypothesis-generating tool to discover novel biological relationships.

Abstract 25

Presenting Author: Lachlan McMichael **Institution:** University of British Columbia

Abstract Title: Revisiting the predictive value of estimated GFR in kidney transplant outcomes.

Abstract Body:

Background

Previous studies examining the predictive value of kidney allograft function with long-term allograft survival have not considered differences in donor and recipient size.

Methods

We studied adult ≥ 18 years, first kidney only deceased donor transplant recipients between 2005-2017 with allograft survival of at least one year reported by the Scientific Registry of Transplant Recipients with follow up through December 2020.

Donor and recipient size was characterized by the ratio of donor and recipient body surface area. Body surface area was calculated by the square root of ((height (cm) x weight (kg))/3600). Kidney allograft function one year after transplantation was estimated using the CKD-EPI equation and the association of eGFR with graft loss censored for patient death was determined using the Kaplan-Meier method. Logistic regression, predictive diagnostics (AUC) and ROC plots were constructed to describe the predictive value of eGFR at one year after transplantation for the outcome of death censored graft loss.

Results

Figure 1, 2, show that there was a graded association of eGFR at one year after transplant with death censored graft loss in sub-cohorts of small recipients who received a large donor kidney (BSA >1.3, n= 7,696) and large recipients who received a small deceased donor kidney (BSA<0.8,

n= 9,131) . The ROC curves and AUC show that the predictive value of eGFR at year after transplantation was significantly different between patient groups defined by the ratio of donor and recipient BSA.

Conclusion
We conclude that the predictive value of kidney function with long-term graft survival varies as a function of donor and recipient size. Studies evaluating the predictive value of kidney function should incorporate consideration differences in donor and recipient size.

Abstract 26

Presenting Author: Lauren P. Westhaver **Institution:** Dalhousie University

Abstract Title: MitoDAMPs released following IRI-induced tissue damage prime lymphocytes for regulation

Abstract Body:

Background
Ischemia-reperfusion injury (IRI) during allograft transplant is associated with local and systemic inflammation that contributes to patient morbidity and mortality. Damage-associated molecular pattern molecules (DAMPs) of mitochondrial origin (mitoDAMPs) are released following IRI and contribute to its subsequent pathogenesis. This is a significant consideration for hepatic grafts in particular, because hepatocytes have a high mitochondrial content. The first responders to mitoDAMPs are innate leukocytes, which recognize these signals and promote inflammation, but how this is calibrated and ultimately limited is not well understood. Surprisingly, we have found that both NK cells and T cells exhibit a regulatory phenotype in response to mitoDAMPs.

Methods
Primary NK and T cells were treated with mitoDAMPs; thereafter, cytokine production was measured by ELISA, with phenotypic changes and functional responses characterized by flow cytometry. A mouse model was used to characterize NK-mediated cytotoxicity, and T cell priming and recall in the presence of mitoDAMPs during viral infection. Mixed-lymphocyte reactions (MLR) were used to examine the effect of mitoDAMPs on T cell proliferation and alloreactivity.

Results
NK and T cells exhibit reduced inflammatory cytokine production and expression of phenotypic markers consistent with inflammation are similarly decreased. Concurrently, NK and T cells increase expression of markers consistent with immunoregulation. Alloreactivity (MLR) and T cell priming/recall are slowed in the presence of mitoDAMPs.

Conclusion
Our data support an immunoregulatory role for lymphocytes in response to mitoDAMPs and highlight that IRI-induced inflammation may be naturally limited.

Abstract 27

Presenting Author: LiAnna Carusone **Institution:** McGill University

Abstract Title: Association between reported barriers to adherence and electronically monitored adherence in kidney transplant recipients

Abstract Body:

Background: Adolescence and young adulthood is the period of highest risk of graft failure among solid organ transplant recipients. We aimed to determine the association between perceived barriers to adherence, as measured using the Adolescent Medication Adherence Survey (AMBS), and immunosuppressive medication adherence. The AMBS consists of 3 subscales (ingestion issues, disease frustration/adolescent issues, regimen adaptation/cognitive issues) which are added to give a total score.

Methods: This is a secondary analysis of data from the pre-intervention 3-month run-in of the TAKE-IT trial, in which adherence was monitored electronically among kidney transplant recipients 11-24y. Adherence was scored 0%, 50%, or 100% on each day based on the proportion of prescribed doses taken. Standard deviation (SD) of tacrolimus levels (3 months before baseline to end of run-in) was assessed as a secondary outcome (adherent if SD<2). Multinomial logistic regression with GEE was used to estimate the association between AMBS total score and adherence. Models were adjusted for age, race, gender, and household income. Additional models considered the association between adherence and barrier load (high if ≥3 barriers), total number of barriers (items rated agree or strongly agree) and AMBS sub-scale scores.

Results: Adherence data were available for 136 participants. The odds of adherence were not associated with AMBS total score (OR=1.00 [95%CI 0.98-1.02]), total number of barriers (OR=1.01 [95%CI 0.92-1.10]), barrier load (OR=1.24 [95%CI 0.78-1.99]) or any AMBS sub-scale score. There were no associations between tacrolimus SD-based adherence and AMBS total score (OR= 0.9778 [95%CI 0.93-1.03]) or any other outcome measures.

Conclusion: A prior study demonstrated that a high AMBS disease frustration/adolescent issues subscale score was associated with poorer adherence (assessed by self-reported adherence and drug level variability). However, no associations between AMBS total or subscale scores and medication adherence were seen in this independent data set.

Abstract 28

Presenting Author: Luciana Pastena Giorno **Institution:** UNIFESP

Abstract Title: Physical Activity Level in Hemodialysis Patients

Abstract Body:

Background: Chronic Kidney Disease is a terminal condition that affects the kidney structure or functions which needs to be submitted to dialysis in specialized centers. With both a high incidence and costs in its therapy, it leads the patients' dependence on health-support services and mobilizes actions from the government around the world. The clinical presentation contributes to the short life expectancy and discourages physical activity, such as fatigue. The physical activity inability is considering a potentially modifiable risk factor, and using tools in the evaluation is fundamental in clinical practice. Objective: To identify physical activity levels in patients referred for dialysis treatment in the Nephrology and Dialysis Unit of the Hospital São Paulo (HSP), using the evaluation of the Human Activity Profile (PAH). Method: A cross-sectional study was conducted and the PAH questionnaire was applied to external or ambulatory hemodialysis patients at the public service of HSP from November 2015 to January 2016. The statistical analysis was given by non-probability sampling for convenience, using mean and standard deviation to the numerical variables; and frequency and proportion to the categorical variables. The serum levels of hemoglobin (Hb) and Body Mass Index (BMI) were also analyzed. Results: The questionnaire was applied in 15 PAH patients aged 41.06 ± 12.66, all were on dialysis for at least five months. The BMI was in the overweight range (25.74 kg / m2) and had low hemoglobin levels (8.56g/dL). The main causes of renal failure were glomerulonephritis and diabetes mellitus with 26% of the cases. Patients had moderate to low activity levels; a moderate correlation between PAH and dialysis time, and a very weak correlation between both PAH and Hb; and PAH and BMI. Conclusion: The hemodialysis patients present a less active routine.

Abstract 29

Presenting Author: Lydia Lauder **Institution:** The Kidney Foundation of Canada

Abstract Title: Walking the Talk –Strategies for Advancing Patient Engaged Research in Transplantation

Abstract Body:

Background: While there have been widespread efforts to ensure research being undertaken is relevant and meaningful to patients and families, the engagement and participation of patients as full partners in the research process is still a novel concept. The Organ Donation and Transplantation Collaborative (ODTC) was established in 2018 to inform thinking and encourage action on ways of facilitating collaboration among stakeholders to improve Canada's Organ Donation and Transplant (ODT) system performance. The Patient/Advocate Advisory Committee (PAAC) of the ODTC is made up of members from the ODTC working groups with personal or professional links to patient/advocate lived experience.
Methods: The PAAC is undertaking a study that has been co-designed and co-led by patient partners, advocates, and researchers. The data collection methods include an online survey and focus groups. The survey tool and focus group questions have been co-designed with patient research partners using an extensive iterative approach.
Results: Co-designing this study has yielded key learnings about how to foster meaningful patient/advocate engagement at every step of the research process including: 1) Framing the co-designed research protocol to meet institutional review board (IRB) requirements, making time

to submit multiple ethics modifications, and engaging with IRB staff to understand the nature of the study is key. 2) Engaging an expert in online survey design is invaluable in survey tool co-design to maintain the rigor of the tool, while thoughtfully incorporating patient/advocate generated questions. 3) Challenging assumptions about roles, partnership and embracing radical engagement have become core to our ongoing research team conversations.
Conclusion: The PAAC study aims to better understand and address patients' lived experiences and utilize this knowledge to meaningfully inform recommendations to improve the ODT system in Canada. Through this co-designed research, we are confident that the recommendations will truly represent patients and families.

Abstract 30

Presenting Author: Manoela Ferreira **Institution:** University of Toronto

Abstract Title: Feasibility of a virtual assessment for physical / phenotypic frailty in solid organ transplant recipients

Abstract Body:

Background: Assessment of physical frailty is typically done through in-person, clinical assessment in solid organ transplant (SOT) recipients. However, the COVID-19 pandemic has posed challenges to in-person evaluation of physical frailty and there has been a need to shift to virtual assessment. Currently, there is little information on the feasibility of conducting virtual frailty assessments in SOT recipients.
Objectives: 1) To describe the feasibility of virtual assessment of frailty in SOT recipients using a modified Fried Frailty Phenotype (FFP) and Short Physical Performance Battery (SPPB) and 2) to describe the prevalence of frailty in SOT recipients using these measures.
Methods: This is a secondary analysis of a prospective, cohort study of adult SOT recipients from the University Health Network. 38 virtual assessments were performed between July 2020 and April 2021, at 3- and 12-months post-transplant (n = 7 and 31, respectively) using video call (Microsoft Teams) to test the SPPB and modified FFP. Prior to the video call, an email was sent with a video of the SPPB, and an e-questionnaire for exhaustion, physical activity and handgrip strength. Feasibility variables included: assessment duration, presence of support person and adverse events (e.g. falls).
Results: 43 participants were approached. A total of 35 (81%) performed the virtual assessment, 32 (91%) of them completed the virtual assessment at one timepoint and another 3 (9%) performed the test at both 3- and 12- months timepoints. The video-call had a median duration of 12 minutes [10-15 min]. A support person was present in 68% of the assessments, and there were no adverse events. Frailty prevalence assessed by modified FFP and SPPB is shown in Table 1.
Conclusion: Virtual assessment of physical frailty in SOT recipients was feasible. Further studies should compare virtual and in-person assessments to determine the validity and reliability of virtual testing.

Abstract 31

Presenting Author: Marianna leung **Institution:** St. Paul's Hospital

Abstract Title: Assessment of Health Literacy on Medication Adherence and Graft Outcomes in Kidney Transplant Recipients

Abstract Body:

Previous studies have established low health literacy to be independently associated with lower adherence and adverse outcomes in kidney transplant recipients. Our study investigated if targeted medication adherence interventions based on the health literacy levels of kidney transplant recipients could improve medication adherence and graft outcomes.
A prospective, open label, interventional design trial where kidney transplant recipients were administered validated health literacy tests: New Vital Signs (NVS) & Short Literacy Survey (SLS). Target interventions were provided in the low health literacy group. Adherence rates and clinical outcomes were compared with high and low health literacy groups. 106 patients were analyzed by high or low literacy based on NVS and SLS scores. There were no statistically significant differences in self-reported adherence rates between literacy groups. The low NVS group had more patients within time to therapeutic range and lower coefficient variability of tacrolimus compared to the high NVS group, 59.9% vs 46.5% (p=0.03) and 20% vs 26.1% (p=0.04), respectively. No differences in clinical outcomes were identified between high and low health literacy kidney transplant recipients after targeted interventions. We hope this study will encourage future studies to establish the role of health literacy in both adherence and ultimately kidney graft function.

Abstract 32

Presenting Author: Marie-Chantal Fortin **Institution:** Centre de recherche du CHUM

Abstract Title: Kidney transplant patients', transplant candidates' and living donors' perspectives on the role of patients' stories and creative writing in kidney transplantation: An exploratory study

Abstract Body:

Background:
Kidney transplantation is the best treatment for end-stage renal disease but it is associated with medical, psychological and existential challenges for patients. Patients' experiential knowledge can help other patients facing these challenges. Patients' stories and creative writings are ways to operationalize this experiential knowledge. The objective of this study is to gather transplant candidates' (TCs), kidney transplant recipients' (KTRs) and living donors' (LDs) perspectives on the role of creative writing and patients' stories.

Methods:

We conducted two focus groups and ten semi-directed individual interviews with seven KTRs, eight LDs and five TCs from the CHUM between June and November 2020. The interviews were digitally recorded and transcribed. Thematic and content analyses were conducted.
Results:
All participants were interested in sharing their transplant and donation stories and enthusiastic about the development of a web platform bringing together patients' stories and creative writings. The most important moments in their transplant or donation journey were the deceased donor offer, the dialysis initiation, post-transplant experiences and fear of rejection. Patients' stories are viewed as a way to learn about other experiences, to be comforted and to alleviate the feeling of loneliness. They recommended that creative writings should take different literary forms such as fiction, comics and tales and should depict different aspects of transplantation.
Conclusion:
Participants viewed patients' stories and creative writings as helpful tools to relieve loneliness and learn from other experiences. They believe that patients' stories could help other patients waiting or living with a transplant. They were enthusiastic about the development of a web platform that would bring together patients' stories and were interested in the development of this platform and wanted to participate in future creative writing workshops. Future studies are needed to explore the impact of creative writing and patients' stories on future TCs, KTRs, LDs

Abstract 33

Presenting Author: Marie-Chantal Fortin **Institution:** Centre de recherche du CHUM

Abstract Title: Kidney transplant patients', transplant candidates' and living donors' experiences with creative writing workshops

Abstract Body:

Background:
Creative writing has been described as a therapeutic tool for patients with chronic disease. In the last year, we conducted creative writing workshops with kidney transplant patients (KTRs), living donors (LDs), transplant candidates (TCs) and professional writers. During these workshops, patients were invited to explore different aspects of their experiences and transplant or donation journey: the offer of an organ, dreams, nightmares, auditory and visual sensations and memories. The objective of this study was to gather patients' experiences with these creative writing workshops.

Methods:
We conducted ten semi-directed individual interviews with patients who participated to the creative writing workshops at the CHUM in March 2021. The interviews were digitally recorded and transcribed. Thematic and content analyses were conducted.

Results:
Patients described their participation in creative writing workshops as positive and would highly recommend this activity to other patients and donors. The workshops allow them to develop friendships with other patients. The exercise of creative writing was perceived as introspective, but also as demanding and emotional. Sharing creative writings with other patients and professional writers alleviated the feeling of loneliness, and was a way to contrast their experiences with others and get a sense of the diversity of experiences.

Conclusion:
The participants in this study expressed positive feelings about the creative writing workshops. Creative writing could allow patients to explore other angles of donation and transplantation, aside from clinical data and testimony. It could also allow healthcare professionals to better understand the patients' experiences. Future studies are needed to explore the impacts of creative writing on other patients and transplant candidates.

Abstract 34

Presenting Author: Marie-Chantal Fortin **Institution:** Centre de recherche du CHUM

Abstract Title: Kidney Transplant Recipients and Caregivers' perspective on the use of Precision Medicine in Kidney Transplantation

Abstract Body:

Background
Kidney transplantation is the optimal treatment for end-stage kidney disease. However, antibody-mediated rejection is an important cause of graft loss. A new strategy requiring application of Precision Medicine (PM) tools in transplantation, considers donor-recipient compatibility at the level of the epitope, and holds the promise of improved immunologic risk, preventing rejection and premature graft loss. Incorporation of PM tools in decision making of organ allocation, however, must abide by ethical principles of fairness and justice. The objective of this study is to gather patients' perspectives on PM and kidney transplantation.

Methods
We conducted 16 individual semi-directed interviews with kidney transplant recipients and caregivers from four Canadian transplant centres. The interviews were digitally recorded and transcribed. Thematic and content analyses were conducted

Results
Participants expressed trust in the current allocation scheme and identified immunologic compatibility as one of the important criteria for kidney allocation. They viewed PM as promising technology, but were concerned that PM may extend waiting time or deny access to transplantation for some patients. Participants indicated willingness to wait approximately 2 years for an epitope compatible kidney to be allocated. In order to make informed decisions to accept or reject a kidney offer, patients requested to be informed on the extent of epitope

compatibility that can be achieved, implications to graft rejection and failure risk, as well as the impact on waiting time while awaiting a compatible kidney offer.

Conclusion
PM is a promising strategy for decreasing risks of graft failure. Participants viewed PM as an important innovation but were concerned about increased waiting time and decreased access to transplantation when considering PM for allocation. These results will inform the development of future organ allocation algorithms in kidney transplantation that integrate PM in a way that would be deemed acceptable and fair to patients.

Abstract 35

Presenting Author: Matheus de Paiva Azevedo **Institution:** McGill University

Abstract Title: Changes in functional outcomes after an inpatient rehabilitation program for solid organ transplant recipients

Abstract Body:

Background: Many solid organ transplant (SOT) patients have impaired exercise capacity and physical function pre- and post- transplant. Exercise training programs have been shown to be beneficial for uncomplicated SOT recipients in an outpatient setting, but little is known about the effects of inpatient rehabilitation programs for SOT recipients. We aimed to 1) to describe the changes in functional outcomes after an inpatient rehabilitation program for SOT recipients, and 2) to determine whether the changes in lower body strength and quadriceps strength are associated with changes in functional exercise capacity.
Methods: This was a single arm prospective longitudinal study. Recipients of liver, kidney, heart, lung, or multiple organs participated in an in-patient multidisciplinary rehabilitation program twice a day, 7 days a week for 3-4 weeks at St John's Rehabilitation Hospital in Toronto. Outcome measures included: 2-Minute Walking Test (2MWT), Timed Up and Go, Berg Balance Scale, 30-Second Sit to Stand (30-STS), biceps and quadriceps strength, Functional Independence Measure and Canadian Occupational Performance Measure.
Results: Twenty-eight participants completed the study (54% female, mean age = 55 ±11). Participants were mostly liver (42%) and lung recipients (35%). Participants showed statistically significant improvements in all outcomes after the intervention (all $p<0.01$, 95% CI). There was no relationship between change in 30-STS and change in 2MWT ($r=0.102$; $p=0.06$) and change between quadriceps strength and 2MWT ($r=0.087$; $p=0.06$).
Conclusion: The inpatient rehabilitation program contributed to improvements in exercise capacity, mobility, balance, muscle strength, ability to perform daily activities and health-related quality of life. Changes in lower body strength and quadriceps strength were not associated with changes in functional exercise capacity. Further work with a larger sample size and control group should be conducted to estimate the real effect of an in-patient rehabilitation program for SOT recipients.

Abstract 36

Presenting Author: Max Zhang **Institution:** Western University

Abstract Title: Preservation of renal grafts in sodium thiosulfate-supplemented University of Wisconsin solution protects renal grafts against prolonged cold ischemia-reperfusion injury by mitigating graft apoptosis and inflammation

Abstract Body:

Introduction: Current methods to combat cold ischemia-reperfusion injury (IRI) involves static cold storage of donor organs in a preservation solution prior to transplantation. We have previously demonstrated that supplementation of University of Wisconsin (UW) solution with non-FDA-approved hydrogen sulfide (H2S) donor molecules minimizes cold IRI and improves renal graft function after transplantation. The present study investigates whether an FDA-approved H2S donor molecule, sodium thiosulfate (STS), will have the same or better effect in a clinically relevant rat model of syngeneic kidney transplantation.

Methods: Thirty Lewis rats underwent bilateral nephrectomy followed by syngeneic transplantation of the left kidney which was previously stored in either UW or UW+STS solution at 40C for 24-h. Following transplantation, rats were monitored for 14 days or until sacrifice to assess urine output and serum creatinine. Tissue sections were stained with H&E, TUNEL, CD68, and MPO to detect acute tubular necrosis (ATN), apoptosis, macrophage infiltration, and neutrophil infiltration respectively.

Results: UW-STS-treated grafts showed significantly improved immediate graft function ($p<0.05$) with improved recipient survival ($p<0.05$) compared to UW grafts. Histopathological examination revealed a significant reduction in ATN ($p<0.05$) and apoptosis ($p<0.05$) along with markedly decreased macrophage and neutrophil infiltration ($p<0.05$) as well as downregulation of the expression of pro-inflammatory and pro-apoptotic genes in UW+STS-treated grafts compared to UW grafts.

Conclusion: We show for the first time that preservation of renal grafts in STS-supplemented UW solution protects against prolonged cold IRI by suppressing apoptotic and inflammatory pathways, and thereby improving graft function and recipient survival.

Abstract 37

Presenting Author: Melika Dastgheib **Institution:** University Health Network

Abstract Title: “It wasn’t that great”: Challenges in Patient-Provider Communication after Kidney Transplant – a Qualitative Study

Abstract Body:

Background: Kidney transplantation is a life-altering treatment, but many patients experience physical or psychosocial symptoms post-transplant. Managing these symptoms requires effective communication between patients and healthcare providers (HCP). Yet, research shows that there are challenges in this area, and suboptimal communication may contribute to suboptimal assessment and management of symptoms. In this qualitative analysis, we explore patient experiences in communicating with their HCP after a kidney transplant.

Methods: We used Qualitative Description methodology to understand the quality of communication between recipients and HCP post-transplant. We utilized purposive sampling (flyers and snowball recruitment) (June2020-June2021). Semi-structured, in-depth, individual interviews were conducted over Microsoft Teams platform by a research associate and two students in Toronto. The interviews were audio-recorded and transcribed verbatim. Content analysis directed the iterative development of codes and categories.

Results: Eight transplant recipients (5 males, ages 36-75, 1-15 years post-transplant) described a range of experiences, from regular contact with HCP to little perceived opportunity to communicate between appointments. Compared to pre-transplant care, communication was less frequent and recipients described feeling isolated and unsure how to seek information and support. They relied on searching for information online, visiting family doctors or the emergency room. Some connected with HCP over the phone, but this was not always timely nor efficient. Even those who described regular access to HCP felt that the focus was more on the physical and less on the psychosocial aspects of their health.

Conclusion: Communication challenges between kidney transplant recipients and HCP contribute to feelings of isolation and difficulties navigating post-transplant life. Regular monitoring of patient-reported biopsychosocial outcomes, and tailoring communication to individual preferences may improve individualized care.

Abstract 38

Presenting Author: Nicholas Bourgeois **Institution:** CHUM

Abstract Title: Relationship of exercise capacity, physical function and frailty to outcomes in lung transplantation: a scoping review.

Abstract Body:

Background: Measures of exercise capacity, frailty and physical function are commonly used in lung transplant candidates and recipients to evaluate their physical limitations pre- and post-transplant, to select candidates for transplantation and to evaluate the effects of exercise training. It is unclear how these measures are related to clinical outcomes and healthcare utilization before and after lung transplantation. The purpose of this scoping review was to describe measures of exercise capacity, physical function and frailty that have been used in lung transplant candidates and recipients, and their relationship with pre- and post-transplant

outcomes.

Methods: Three electronic databases were searched from inception until June 2021. We considered studies of any design that included performance-based tests of exercise capacity, physical function and frailty in adult lung transplant candidates or recipients. Outcomes of interest were clinical outcomes (e.g., waitlist and post-transplant mortality, quality of life) and healthcare utilization (e.g., hospital length of stay).

Results: Seventy-one articles met the inclusion criteria. The 6-minute walking test (6MWT) was the most commonly used test and was shown to be related to mortality on the waiting list. There were inconsistent results regarding the relationship of the 6MWT and mortality post-transplant. The cardiopulmonary exercise test (CPET) was shown to be related to mortality on the waiting list and survival post-transplant. The Short Physical Performance Battery (SPPB) was shown to be related to post-transplant survival and pre-and post-transplant quality of life. There were few studies that examined the relationship of the tests of interest to healthcare utilization and the results were inconsistent.

Conclusion: Measures of exercise capacity and frailty have been shown to be related to mortality and quality of life pre- and post-transplant. Modification of exercise capacity and frailty status may influence clinical outcomes in lung transplantation, but impact on healthcare utilization is still unclear.

Abstract 39

Presenting Author: Nina Worel **Institution:** Medical University Vienna

Abstract Title: ALLELE Study: A multicenter, open-label, Phase 3 study of tabelecleucel for solid organ or allogeneic hematopoietic cell transplant subjects with Epstein-Barr virus-driven post-transplant lymphoproliferative disease (EBV+ PTLD) after failure of rituximab or rituximab and chemotherapy

Abstract Body:

Background: Epstein-Barr virus-driven post-transplant lymphoproliferative disease (EBV+ PTLD) is a rare and potentially life-threatening disease in the setting of immunosuppression following solid organ (SOT) or allogeneic hematopoietic cell transplant (HCT). Treatment of relapsed/refractory EBV+ PLTD is inadequate and has poor overall survival, highlighting a clear unmet medical need. Challenges with current therapies include limited efficacy, potential for graft rejection, or graft-vs-host disease (GvHD), and high mortality.

Tabelecleucel is an off-the-shelf, allogeneic EBV-specific T cell therapy. Here we describe the design of an ongoing multicenter study of tabelecleucel for subjects with EBV+ PTLD after failure of rituximab (R) +/- chemotherapy (CT) which has recently opened for enrollment in Canada.

Trial design: ALLELE is evaluating the benefit/risk of tabelecleucel in SOT patients following treatment with R or R plus CT (N=33) and in HCT patients following treatment with R (n=33) (NCT03394365). Key inclusion criteria: biopsy-proven EBV+ PTLD and failure of R +/- CT.

Tabelecleucel is selected for each patient from an inventory based on an EBV HLA-restricting allele and a second shared allele. During each treatment cycle, tabelecleucel is administered intravenously at a dose of 2x10^6 cells/kg on days 1, 8, 15, followed by observation through day 35. Responses per radiographic and clinical assessment are evaluated at the end of each cycle using modified Lugano criteria. Patients receive additional treatment cycles until they meet end of treatment criteria. A restriction switch (tabelecleucel with different HLA-restriction) is permitted for patients with stable or progressive disease. After ending treatment, subjects are assessed quarterly up to 24 months for disease status, and biannually thereafter, up to 5 years, for survival status. The primary endpoint of the study is overall response rate (ORR), assessed by independent review, following the administration of tabelecleucel.

Abstract 40

Presenting Author: Noor Al Kaabi **Institution:** University Health Network

Abstract Title: Symptom management preferences of lung transplant recipients and caregivers

Abstract Body:

Background: Lung transplant (LT) recipients frequently experience physical, emotional, and social difficulties. These symptoms are often undermanaged and can lead to impaired quality of life. A better understanding of the perspectives of LT recipients and their caregivers about their symptom experiences and management needs will improve post-transplant care for LT recipients. Methods: As part of a larger study aimed at developing a patient-centered electronic assessment toolkit, adult (≥18 years) LT recipients and caregivers of LT recipients were recruited for this study via flyers. Patients not fluent in English or cognitively impaired were excluded. Qualitative description was used to explore and understand participants' post-transplant experiences and preferences. A semi-structured interview guide with open-ended questions was used to facilitate in-depth, individual interviews. Interviews were recorded and transcribed verbatim. Transcripts were analyzed via content analysis using deductive and inductive coding strategies. Codes and categories were developed and refined by the research team. Results: 8 LT recipients and 2 caregivers (age: 39-80 years, 3-12 years post-transplant, 5/10 female) participated. Participants identified significant challenges in physical (e.g. dyspnea, fatigue, muscle weakness); emotional (e.g. depression, anxiety); and social (e.g. social roles and self-care) domains. Dyspnea was considered the most troublesome symptom. Furthermore, participants described the clustering of their post-transplant symptoms (e.g dyspnea leads to fatigue, sleep disturbances and worsens anxiety). Common concerns also include prednisone side effects and anxiety due to increased risk of infection. Disappointment was expressed about breathing problems that were in contrast to expectations that LT would "normalize" breathing. Participants emphasized that a care plan integrating all aspects of health during post-transplant rehabilitation is needed to adequately support their needs. Conclusion: This analysis identified a range of patient-valued physical,

emotional and social concerns. Findings will inform the development of interventions to improve LT care.

Abstract 41

Presenting Author: Rebecca Wong **Institution:** Toronto General Hospital

Abstract Title: Renal cell carcinoma in kidney transplant recipients: Incidence, trends, clinical management and outcomes

Abstract Body:

Background: Renal cell carcinoma (RCC) is a relatively common malignancy among kidney transplant recipients (KTR), with risk reported to be 6-15 times greater than the general population. RCC among KTR has also been associated with worse graft and overall survival. We aimed to describe the incidence, characteristics, clinical management, and outcomes of RCC among a large, single centre cohort of KTR.

Methods: We conducted an observational cohort study looking at KTR who received a graft from January 1, 2000 to December 31, 2017 (n = 2,443) with a minimum of 1 year of follow-up. Simultaneous kidney/pancreas transplants and transplants done outside of our centre were excluded. The Kaplan-Meier product-limit method was used to determine the incidence of RCC. Descriptive analyses were employed to examine the characteristics and management of RCC. Risk factors and clinical outcomes were analyzed using Cox regression models.

Results: The incidence of RCC among our cohort was 0.32 (95% CI: 0.24, 0.42) per 100 person-years. Almost half (47.1%) of cases occurred within the first 4 years post-transplant. The majority of cases were T1a tumours (86.3%), clear-cell subtype (45.1%), and in the native kidney (80.4%). A higher proportion of KTR with RCC had other malignancies versus KTR without RCC. RCC in the native kidney was associated with greater risk of death with graft function; overall mortality, but not cancer-specific mortality, at 2- and 5-years post-transplant was higher among KTR with RCC than those without.

Conclusions: Majority of RCC cases in KTR occur in the native kidneys and are low stage, low grade. Oncologic outcomes were excellent but overall survival was worse among KTR with RCC in comparison to other KTR without RCC. A diagnosis of RCC in the native kidney was associated with increased rates of death with graft function.

Abstract 42

Presenting Author: Roxaneh Zaminpeyma **Institution:** McGill University

Abstract Title: The effects of obesity and bariatric surgery on kidney transplantation outcomes

Abstract Body:

Background:
Morbid obesity is a relative contraindication to renal transplantation and thus patients with body mass index (BMI) above 40 kg/m2 are rarely transplanted. Bariatric surgery is safe in dialysis patients and may improve eligibility and outcomes in transplant candidates. We assessed our results in a cohort of patients undergoing pre-transplant bariatric surgery and compared them to those without bariatric surgery. We hypothesized that obese candidates with bariatric surgery will have improved short- and long-term outcomes following transplantation.

Methods:
We compared 4 groups of transplant patients from 2010 to 2020: BMI <30 (non-obese, n= 753), BMI ≥ 30 (obese, n=213), BMI ≥ 35 (morbid obese, n=69), and BMI ≥ 30 with bariatric surgery (n=42). Allograft functional success was defined as eGFR >30ml/min 90 days post-transplantation. Statistical analysis was performed on SPSS (P<0.05 = significant). Categorical comparisons were performed using one-way ANOVA and Log Rank Test.

Results:
Bariatric surgery reduced weight from BMI average of 41.9 pre-op to 32.3 at transplantation. At 90 days, allograft functional success was 93%, 90%, 88%, 95% (p< 0.01) for non-obese, obese, morbid obese, and bariatric surgery group, respectively. Graft survival was not different at one year (p=0.248). At 3 years, cumulative graft survival was 92%, 87%, 85% and 100% for non-obese, obese, morbidly obese, and bariatric surgery group, respectively (p=0.027). At 5 years, cumulative graft survival was 89%, 80%, 73% and 86% (p=0.001) for non-obese, obese, morbid obese, and bariatric surgery group, respectively.

Conclusion:
Bariatric surgery offers improved access to renal transplantation for morbidly obese patients and should be considered as an effective treatment. It results in improved graft function and outcomes for obese and morbidly obese transplant recipients.

Abstract 43

Presenting Author: Safaa Azzouz **Institution:** McGill University

Abstract Title: The predictive role of renal resistive index measured post-kidney transplant: a systematic review

Abstract Body:

Background : In native kidneys, renal resistive index (RRI) has been demonstrated to be associated with long-term patient survival and hard renal outcomes such as need for dialysis. In kidney transplant recipients, RRI is associated with short-term outcomes, such as delayed graft function; however, observational studies have reported contradictory results with respect to long-term graft outcomes. We aimed to determine the role RRI as a predictor of patient and graft outcomes 3 months after transplantation.

Methods: This systematic review was performed using the following databases : MEDLINE, PubMed, The Cochrane; Embase and Scopus. We included all studies performed in transplant recipients who received a living or deceased donor. Outcomes of interest were patient survival and death-censored graft survival.

Results: Of the 2,550 records identified, 934 were screened, 124 were eligible for full text review and 21 were included in the review. All were observational studies. Of the 10 studies that reported patient survival, either as a composite outcome or individually, 8 studies reported that RRI was associated patient survival. 17 studies reported on graft survival and in many it was unclear if the outcome was all-cause or death-censored graft outcomes. Of these, 12 studies reported that RRI was associated with graft survival, however, all were crude or unadjusted estimates. Of the 5 studies that reported that RRI was not associated with graft survival, most were adjusted analysis. No metanalysis could be performed due to a significant heterogeneity of the data. Except for 3 observational studies, most were deemed to be at a high risk of bias.

Conclusion: We speculate RRI reflect a patients' hemodynamic characteristics and mirrors systemic vascular disease in transplant recipients rather than properties of the graft itself. Thus, it is associated with patient survival but has a lower predictive role in determining graft outcomes. The role of routine ultrasonography in clinical transplantation needs to be better delineated.

Abstract 44

Presenting Author: Sergi Clotet-Freixas **Institution:** University Health Network

Abstract Title: Increased Autoantibodies Against Ro/SS-A, CENP-B, and La/SS-B in Patients with Kidney Allograft Antibody-Mediated Rejection

Abstract Body:

Background: Antibody-mediated rejection (AMR) causes >50% of late kidney graft losses. In addition to anti-HLA donor-specific antibodies (DSA), antibodies against non-HLA antigens are also linked to AMR. Identifying key non-HLA antibodies will improve our understanding of AMR.

Methods: We analyzed non-HLA antibodies in sera from 80 kidney transplant patients with AMR, mixed rejection, acute cellular rejection (ACR), or acute tubular necrosis (ATN). IgM and IgG antibodies against 134 non-HLA antigens were measured in serum samples collected pre-transplant or at the time of diagnosis (within 30 days of the indication biopsy date).

Results: Fifteen non-HLA antibodies were significantly increased ($p<0.05$) in AMR and mixed rejection compared to ACR or ATN pre-transplant, and seven at diagnosis. AMR and mixed cases showed significantly increased pre-transplant levels of IgG anti-Ro/SS-A and anti-CENP-B, compared to ACR. Together with IgM anti-CENP-B and anti-La/SS-B, these antibodies were significantly increased in AMR/mixed rejection at diagnosis. Increased IgG anti-Ro/SS-A, IgG anti-CENP-B and IgM anti-La/SS-B were associated with the presence of microvascular lesions and class-II DSA ($p<0.05$). Changes in IgG anti-Ro/SS-A, IgM anti-CENP-B and IgM anti-La/SS-B

antibodies were reproduced in an external cohort.

Conclusions: This is the first study implicating autoantibodies anti-Ro/SS-A and anti-CENP-B in AMR. These antibodies may participate in the crosstalk between autoimmunity and alloimmunity in kidney AMR.

Abstract 45

Presenting Author: Sergi Clotet-Freixas **Institution:** University Health Network

Abstract Title: Extracellular Matrix Injury of Kidney Allografts in Antibody-Mediated Rejection: A Proteomics Study

Abstract Body:

Background: Antibody-mediated rejection (AMR) accounts for >50% of kidney allograft loss. Donor-specific antibodies (DSA) against HLA and non-HLA antigens in the glomeruli and the tubulointerstitium cause AMR while inflammatory cytokines such as TNFalpha trigger graft injury. The mechanisms governing
cell-specific injury in AMR remain unclear.

Methods: Unbiased proteomic analysis of laser-captured and microdissected glomeruli and tubulointerstitium was performed on 30 for-cause kidney biopsy specimens with early AMR, acute cellular rejection (ACR), or acute tubular necrosis (ATN).

Results: A total of 107 of 2026 glomerular and 112 of 2399 tubulointerstitial proteins was significantly differentially expressed in AMR versus ACR; 112 of 2026 glomerular and 181 of 2399 tubulointerstitial proteins were significantly
dysregulated in AMR versus ATN ($P<0.05$). Basement membrane and extracellular matrix (ECM) proteins were significantly decreased in both AMR compartments. Glomerular and tubulointerstitial laminin subunit gamma-1 (LAMC1) expression decreased in AMR, as did glomerular nephrin (NPHS1) and receptor-type tyrosine phosphatase O (PTPRO). The proteomic analysis revealed upregulated galectin-1, which is an immunomodulatory protein linked to the ECM, in AMR glomeruli. Anti-HLA class I antibodies significantly increased cathepsin-V (CTSV) expression and galectin-1 expression and secretion in human glomerular endothelial cells. CTSV had been predicted to cleave ECM proteins in the AMR glomeruli. Glutathione S-transferase ω-1, an ECM-modifying enzyme, was significantly increased in the AMR tubulointerstitium and in TNFalpha-treated proximal tubular epithelial cells.

Conclusions: Basement membranes are often remodeled in chronic AMR. Proteomic analysis performed on laser-captured and microdissected glomeruli and tubulointerstitium identified early ECM remodeling, which may represent a new therapeutic opportunity.

Abstract 46

Presenting Author: Seychelle Yohanna **Institution:** McMaster University

Abstract Title: Implementation of a One-Day Donor Clinic to Increase the Efficiency of the Living Kidney Donor Evaluation Process

Abstract Body:

Living donor kidney transplantation is the optimal treatment for patients with kidney failure, resulting in better patient outcomes and lower healthcare costs than deceased donor transplantation or chronic dialysis. A key barrier to becoming a living donor is the lengthy and complex evaluation process. Candidates must complete 15+ clinical tests and attend multiple consultations with healthcare providers. The median evaluation time in Ontario is nearly one year, and candidates must make 9 trips to the hospital on average. In addition to being inefficient, the need to take this amount of time off work or away from other responsibilities may be prohibitive for some candidates. A long evaluation time also has implications for the intended recipient. Long wait times are associated with recipient death, and the recipient may become ineligible for transplantation due to worsening health. A shorter, more efficient donor evaluation process may also help more patients receive a pre-emptive transplant. In 2017, we sought feedback from previous living donors at our program on how to improve the evaluation experience. One solution proposed was to offer a condensed clinic where candidates could complete all testing and consultations within one day. After extensive planning with stakeholders from multiple hospital departments, we were able to implement a one-day clinic starting in March 2019. The clinic runs monthly, evaluating four donor candidates per day (approximately 25% of our donor candidate evaluations). To date, we have evaluated 95 donors in the clinic. This patient-centred quality improvement initiative has the potential to considerably improve the efficiency and experience of living kidney donor evaluation and result in better outcomes for transplant recipients. Next steps include a formal evaluation of the clinic on process measures and recipient outcomes. We anticipate that through the demonstrated success of our one-day donor clinic, we may attract more living donor candidates to our program, and most importantly, inspire other provincial and national transplant centres to similarly redesign and improve their evaluation program.

Abstract 47

Presenting Author: Shaifali Sandal **Institution:** McGill University Health Centre

Abstract Title: Impact of the COVID-19 pandemic on transplantation by income-level and cumulative COVID-19 incidence: a multinational survey study

Abstract Body:

Objective: The COVID-19 pandemic significantly affected the provisions of health services to other necessary but deprioritized fields, such as transplantation. Many programs had to ramp-down their activity, which may significantly affect transplant volumes. We aimed to pragmatically analyze measures of transplant activity and compare them by a country's income-level and cumulative COVID-19 incidence (CCI).

Methods: From June-September 2020, we surveyed transplant physicians identified as key informants in their programs. Of the 1,267 eligible physicians, 40.5% from 71 countries participated. Logistic regression was used to conduct a comparative analysis.

Results: Overall, 46.5% of the programs from high-income countries anticipate being able to maintain >75% of their transplant volume compared with 31.6% of the programs from upper-middle-income countries, and with 21.7% from low/lower-middle-income countries (p<0.001) (Table 1). This could be because more programs in high-income countries reported being able to perform transplantation/s (86.8%-58.5%-67.9%, p<0.001), maintain pre-pandemic deceased donor offers (31.0%-14.2%-26.4%, p<0.01), and avoid a ramp down phase (30.9%-19.7%-8.3%, p<0.001), respectively. In a multivariable analysis that adjusted for CCI, programs in upper-middle-income countries (aOR=0.47, 95%CI:0.27-0.81) and low/lower-middle-income countries (aOR=0.33, 95%CI: 0.16-0.67) had lower odds of being able to maintain >75% of their transplant volume, compared with programs in high-income countries. Again, this could be attributed to lower-income being associated with 3.3-3.9 higher odds of performing no transplantation/s, 66-68% lower odds of maintaining pre-pandemic donor offers, and 37-76% lower odds of avoiding ramp-down of transplantation. Overall, CCI was not associated with these measures (Table 2).

Conclusions: The impact of the pandemic on transplantation was more in lower-income countries, independent of the COVID-19 burden. Transplant programs in lower-income countries may need more effort to rebuild disrupted services and recuperate from the pandemic even if their COVID-19 burden was low.

Abstract 48

Presenting Author: Shaifali Sandal **Institution:** McGill University Health Centre

Abstract Title: Identifying and Comparing Health Professional-Level Barriers to Living Donor Kidney Transplantation across Canada

Abstract Body:

Background: Health professionals (HPs) play a crucial role in a patient's decision to pursue living donor kidney transplantation (LDKT). A CIHR-organized workshop recognized that overcoming HP-level barriers are crucial to improving access to LDKT a decade ago. Yet, little is known about the barriers that HPs experience when educating or helping their patients pursue LDKT. The objective of this cross-sectional study was to quantify and compare HP-level barriers to LDKT across Canada.

Methods: Based on six themes previously identified in a qualitative study, we created a survey instrument for HPs involved in the care of patients with kidney failure. Differences in the percentage of responses on a Likert scale were compared between provinces that have an overall higher-than-average living donation rate (BC, ON, MB and AB) versus those with a lower-than-average rate (QC, SK, NB, NL, NS, PEI) using Fisher's exact test. A sensitivity analysis

was conducted between the highest (BC) and lowest (QC) performing provinces.

Results: Of the 92 HPs who took the survey, 53% represented the higher-performing provinces. Poor attitude towards LDKT was not identified as a barrier and neither was a lack of awareness on how to refer patients. However, HPs lack of education on LDKT and lack of comfort discussing LDKT were perceived as barriers. This may be attributed to the fact that 35% of HPs reported not receiving training on LDKT. Overall, responses did not vary between HPs in higher and lower performing provinces. However, when comparing mean responses between BC and QC, some barriers seemed to be more prevalent in QC (Table 1).

Conclusion: There are barriers to LDKT that HPs experience across Canada and some may be more prominent in lower-performing provinces. Our work will inform intervention strategies that can improve access to LDKT across Canada. This will complement the tremendous work already being pursued in addressing patient-level barriers to LDKT.

Abstract 49

Presenting Author: Shaifali Sandal **Institution:** McGill University Health Centre

Abstract Title: The Secret to British Columbia's High Performance in Living Donor Kidney Transplantation: A Qualitative Case Study

Abstract Body:

Background: In patients with kidney failure, living donor kidney transplantation (LDKT) is the best treatment option; yet LDKT rates have stagnated in Canada and vary widely across provinces. Over the past decade, the province of BC has consistently outperformed others in LDKT. We aimed to learn the functions of this relatively high-performing health system to identify barriers and facilitators to LDKT.

Methods: This study was conducted using an exploratory case study approach. The “case” was comprised of the people and organizations that are involved with enabling LDKT (Figure 1). Data collection, conducted between October 2020 and January 2021, entailed document review and semi-structured interviews with 22 key stakeholders, including provincial leadership, care teams, and patients. Participants were recruited via purposive sampling and snowballing techniques. Thematic analysis was used to generate themes.

Results: Following analysis of interviews with 22 participants and document review, we identified the following five themes as facilitators to LDKT: a centralized infrastructure, a mandate for timely intervention, an equitable funding model, a commitment to collaboration, and cultivating distributed expertise. Specifically, the relationship between two provincial organizations (BC Transplant and BC Renal) was identified as key to enabling the mandate and processes for LDKT. Five barriers were identified which arose from silos between provincial organizations, which manifested as inconsistencies in coordinating LDKT along the spectrum of care. These were divided accountability structures, disconnected care processes, missed training opportunities,

inequitable access by region, and financial burden for donors and recipients (Figure 2).

Interpretation: We demonstrate strong links between provincial infrastructure and the processes that facilitate or impede timely intervention and referral of patients for LDKT. Our findings have important implications for policymakers and provide opportunities for cross-jurisdictional comparative analyses and the development of Learning Health Systems.

Abstract 50

Presenting Author: Shaifali Sandal **Institution:** McGill University Health Centre

Abstract Title: Re-Kidney Transplantation in Patients with Graft Failure: Mortality Trends and Survival Benefit by Age

Abstract Body:

Background: The proportion of kidney transplantations (KT) have doubled over the past three decades and a significant proportion ends up with graft failure. The survival benefit of re-KT has been reported; however, there is a paucity of literature analyzing this in older adults. In addition, trends in mortality over the last three decades are largely unexplored. We aimed to analyze the survival benefit of re-KT and trends in mortality for those who were waitlisted versus those who received re-KT.

Methods: Using SRTR data, we identified those who were waitlisted for re-KT between 1990-2019. We first compared the mortality rate in waitlisted patients and those who received re-KT. Then, using re-KT as a time-dependent variable and we conducted a Cox regression to assess the risk of mortality in those undergoing re-KT versus waitlisted patients. Last, we compared this risk by patient's age at listing (18-64 versus ≥65 years).

Results: Overall, 42,366 patients were listed for re-KT and 47.5% underwent re-KT. While the number of patients being listed for re-KT tripled between 1990 and 2000, this number has stayed steady since then (Figure 1). The mortality rate among waitlisted patients was 6.6 per 100 person-years and 3.0 per 100 person-years among those who were retransplanted and was higher in older patients. Notably, the mortality rates in both these cohorts have declined over time (Figure 1). In the total cohort, re-KT was associated with a 57% lower hazard of mortality when compared with waitlisted patients and this survival benefit was observed in both younger and older patients (Table 1).

Conclusion: Our finding suggests that re-KT is associated with a significant survival benefit in younger and older patients. In addition, the mortality rates are declining in both waitlisted patients and patients with re-KT. These positive trends are encouraging as graft failure is now becoming one of the leading causes of kidney failure needing dialysis.

Abstract 51

Presenting Author: Shaifali Sandal **Institution:** McGill University Health Centre

Abstract Title: Disparities in Access to Re-Kidney Transplantation After Graft Failure

Abstract Body:

Importance: It is well known that there are significant disparities in access to kidney transplantation (KT) in transplant naïve incident dialysis patients. Those with graft failure were recently demonstrated to have a higher chance of being waitlisted for re-KT; whether these advantages are equitably distributed remains to be explored. We aimed to analyze if access to re-KT varied by the recipient's age, race, and sex; individually or in combination

Methods: Using the United States Renal Data and Scientific Registry of Transplant Recipients we identified 93,104 adult patients with graft failure between 1995-2017. We wanted to compare the chances of waitlisting for re-KT and receiving a re-KT by age (younger:18-64, older:≥65 years), race (White patients, Black patients, patients of other race [POR]), and sex (male patients, female patients)

Results: In the cohort of patients with graft failure, 16.3% were older patients, 40.8% were female patients, 32.0% were Black patients, and 6.2% were POR. Also, 50.1% were waitlisted for a re-KT and 26.8% underwent re-KT. After adjusting for confounders, older patients, Black patients, and female patients had lower chances of being waitlisted for a re-KT, but POR did not. After being waitlisted, older patients, Black patients, and POR but not female patients had lower chances of re-KT (Table 1). With some exceptions, when combining these exposures, there continued to be significant disparities in access to waitlisting and re-KT. For example, when compared with younger White patients, younger Black patients (11%, 36%), older White patients (46%, 16%), older Black patients (53%, 47%), older POR (43%, 49%) had lower chances of being waitlisted and undergoing re-KT, respectively. Younger POR had 29% lower chances of re-KT but not waitlisting.

Conclusions: Older age, non-White race and female sex are associated with decreased access to re-KT. While familiarity with navigating the transplant process benefits some patients, these benefits are not equitably distributed. Factors that drive these disparities need to be explored to develop an actionable framework of interventional strategies that can drive policy.

Abstract 52

Presenting Author: SHANSHAN Lan **Institution:** CRCHUM

Abstract Title: Caspase-3 dependent peritubular capillary dysfunction is pivotal for transition from acute to chronic kidney disease after acute ischemia-reperfusion injury

Abstract Body:

Background: Ischemia-reperfusion injury (IRI) is a major risk factor for chronic renal failure. Caspase-3, an effector responsible for apoptosis execution, is activated within tubular epithelial

structure and peritubular capillaries (PTC) in the early stage of IRI-induced acute kidney injury (AKI). We previously characterized the different cell deaths in tubular and microvascular compartments of IRI-induced acute kidney injury (AKI) and their relative importance on microvascular rarefaction and renal fibrogenesis in mild AKI. Here, we further characterize the role of caspase-3 in microvascular dysfunction and progressive renal failure in both mild and severe AKI. Methods: Unilateral renal artery clamping for 60 minutes with contralateral nephrectomy was performed in both wild-type (C57BL/6) or caspase-3-/- mice. Results: In the severe AKI model (60 minutes clamping), caspase-3-/- mice showed reduced PTC endothelial cell loss, decreased PTC collagen deposition, and α-SMA expression, and lower tubular injury scores on the long-term when compared to wild-type animals. Preservation of the peritubular microvasculature in caspase-3-/- mice led to reduced tubular ischemia, with lower hypoxia-inducible factor 1α (HIF1α) expression. Besides, intra-vital imaging and micro Computed Tomography (microCT) revealed preserved PTC permeability and better terminal capillary density in caspase-3-/- mice. Caspase-3-/- mice with severe IRI also showed better preservation of long-term renal function. Conclusions: Collectively, these results demonstrate the pivotal importance of caspase-3 in regulating long-term renal function after IRI and establish the predominant role of PTC dysfunction as a major contributor to progressive renal dysfunction.

Abstract 53

Presenting Author: Sibele Maria Schuantes Paim **Institution:** Federal University of São Paul

Abstract Title: Actions of care in the process of organ and tissue donation during the pandemic of COVID-19

Abstract Body:

Background: The COVID-19 pandemic has made organ and tissue donation even more challenging. Federal and global health agencies have issued guidelines for maintaining the performance of transplants. However, each Brazilian region presents a unique reality that impacts donation and transplantation results due to cultural, structural, health, and logistic factors, among others. The objective of this study was to map health care actions in the process of organ and tissue donation in Brazilian regions during the pandemic of COVID-19. Methods: Mixed methods study with convergent parallel strategy (QUAN+QUAL). Quantitative study, with cross-sectional design, and qualitative study, of descriptive-exploratory nature, with the same weight assignment. The research was developed with professionals working in the National Transplant System. Data collection was performed via online form and the quantitative data were analyzed according to descriptive statistics and the qualitative data according to content analysis. Results: From the qualitative data, the following categories emerged: Investigation of possible signs of COVID-19 in potential donors; Care actions related to the environment and the health team in the donation process; and Need for brief and rapid training. The quantitative analysis can demonstrate the adherence of each Brazilian region to the recommendations of health authorities regarding organ and tissue donation and COVID-19. Conclusion: The study showed the differences in the national regions regarding the care actions in the donation process during the pandemic of COVID-19.

Given the information obtained, it is understood that there are still weaknesses in adherence to the recommendations of health authorities due to the differences of each region.

Abstract 54

Presenting Author: Sibele Maria Schuantes Paim **Institution:** Federal University of São Paul

Abstract Title: Adverse events during organ, cells and tissue donation and transplantation processes in the state of São Paulo - Brazil

Abstract Body:

Background: over the past few years, the topic of patient safety has gained increasing prominence. When transferring this discussion to the area of donation and transplantation of cells, organs and tissues, biovigilance is emphasized. To make possible the recognition of the scenario and the proposal of interventions and improvements, it is necessary to analyze reports of adverse events (AE), because the procedures related to the area are not risk-free. Methods: a descriptive study with a quantitative approach, having as object the notifications of AEs in donation and transplantation of cells, organs and tissues performed to FormSUS between 2014 and 2019 in the state of São Paulo. Data was analyzed with descriptive statistics, identifying relative and absolute frequencies. Results: fifty-two notifications were analyzed, most 90.4% (47), are recipient-related events from allogeneic procedures 78.8% (41). Regarding the nature of the event, 48.1% (25) are organ-related notifications, 44.2% (23) cells, 3.8% (2) tissues, and 3.8% (2) tissue and organ. Regarding the type of event, 55.8% (29) of the notifications are infections, 30.8% (16) to other causes (e.g. perioperative complications) and 13.5% (7) to neoplasms. Of the infections, 42.3% referred to Mycobacterium tuberculosis. Of the events analyzed, 44.3% (23) were moderate, 25% (13) deaths, 19.2% (10) severe and 11.5% (6) mild. As for imputability, 36.5% (19) were confirmed, 26.9% (14) discarded, 15.4% (8) possible, 9.6% (5) inconclusive, 7.7% (4) unlikely, and 3.9% (2) probable. Conclusion: The data is similar to those analyzed by the 1st Report on Biovigilance Data in Brazil. It is noteworthy the underreporting of these AEs, considering that the number of donation-transplants in the state of São Paulo represents about 52% of those performed in Brazil.

Abstract 55

Presenting Author: Simi Juriasingani **Institution:** University of Western Ontario

Abstract Title: Using an ex vivo blood-free model of preservation and reperfusion to evaluate the effects of subnormothermic perfusion with hydrogen sulfide on DCD porcine kidney grafts.

Abstract Body:

Background: The clinical translation of normothermic and subnormothermic preservation is limited by the need for blood, which further hinders the translation of therapeutics, like hydrogen sulfide (H2S) donors, that show promise in this context. Using a novel blood-free model of ex vivo kidney preservation and reperfusion, this study evaluates whether adding H2S donor AP39 to Hemopure during subnormothermic perfusion at 21°C improves renal graft outcomes.

Methods: After 30 minutes of clamping the renal pedicles, porcine kidneys were nephrectomized and treated to 4h of static cold storage (SCS-4°C) or subnormothermic perfusion at 21°C with Hemopure (H-21°C), Hemopure with 200nM AP39 (H200nM-21°C) or Hemopure with 1µM AP39 (H1µM-21°C). All kidneys were reperfused with Hemopure at 37°C for 4h with metabolic support. Perfusate composition, tissue oxygenation, urinalysis and histopathology were analyzed to evaluate renal graft function and injury.

Results: During preservation, the H200nM-21°C group exhibited significantly higher urine output than the H-21°C and the H1µM-21°C groups and significantly higher tissue oxygenation than the H1µM-21°C group at the 1h and 2h timepoints. During reperfusion, the H200nM-21°C group exhibited significantly higher urine output and lower urine protein levels than all the other groups, including the SCS-4°C group. Additionally, H200nM-21°C exhibited higher perfusate pO2 levels than all the other groups and significantly lower apoptotic injury than the H-21°C and the H1µM-21°C groups.

Conclusions: Subnormothermic perfusion at 21°C with Hemopure + 200nM AP39 improves renal graft outcomes. Additionally, our novel blood-free model of ex vivo kidney preservation and reperfusion could be useful for studying other therapeutic compounds.

Abstract 56

Presenting Author: Sonia Rodríguez-Ramírez **Institution:** University Health Network

Abstract Title: SELF-REPORTED CANNABIS USE IN KIDNEY TRANSPLANT RECIPIENTS: DOES IT ADVERSELY IMPACT KIDNEY TRANSPLANT OUTCOMES?

Abstract Body:

Background: Consistent with its widespread use in the general population, the prevalence of cannabis consumption has increased in kidney transplant (KT) recipients. The impact of cannabis use on post-transplant outcomes remains uncertain.

Methods: KT recipients referred to the University Health Network from January 1, 2003, to December 31, 2016, were included. Social work assessment notes were used to ascertain information on substance use. Predictors of self-reported cannabis use were examined using a logistic regression model. The association between cannabis use and post-transplant outcomes was evaluated using Cox proportional hazards models.

Results: Among 1,415 KT recipients, 128 self-reported cannabis use and tended to be of younger age, White race, single status, have a history of mental health disorders or non-adherence, and have a living donor. Current cannabis use (defined as self-reported cannabis use within the last 12 months), when compared to non-use, was associated with a higher likelihood of overall biopsy-proven acute rejection (adjusted hazard ratio or aHR 2.37, 95% confidence interval [CI]: 1.20, 4.69), T-cell mediated rejection (aHR 2.66 [95% CI: 1.22, 5.80]), and antibody-mediated

rejection (aHR 2.02 [95% CI: 0.60, 6.80) within the first year post-transplant. Cannabis use did not predict all-cause graft failure (aHR 1.18 [95% CI: 0.75, 1.86]), death-censored graft failure (aHR 1.23 [95% CI: 0.64, 2.38]), and death with graft function (aHR1.11 [95% CI: 0.59, 2.11]), and hospital readmission within the first year post-transplant (aHR 1.03 [95% CI: 0.77, 1.37]).

Conclusion: Current cannabis use was associated with a higher likelihood of overall biopsy-proven acute rejection. Cannabis use did not impact graft survival post-transplant and hospital readmissions. Further studies are warranted to understand the mechanisms for the association of current cannabis use and the risk of acute rejection.

Abstract 57

Presenting Author: Sonia Rodríguez-Ramírez **Institution:** University Health Network

Abstract Title: SELF-REPORTED CANNABIS USE IN KIDNEY TRANSPLANT CANDIDATES: DOES IT REDUCE ACCESS TO TRANSPLANTATION?

Abstract Body:

Background: Consistent with its increasing use in the general population, the prevalence of cannabis consumption is expected to rise in kidney transplant (KT) candidates. The association between cannabis use and access to waitlisting and kidney transplantation remains uncertain.

Methods: Patients referred for KT to the University Health Network from January 1, 2003, to December 31, 2016 were included. Social work assessment notes were used to ascertain information on substance use. Predictors of self-reported cannabis use were examined using a logistic regression model. The association between cannabis use and time to clearance for KT or undergoing KT was evaluated using Cox proportional hazards models.

Results: Among 2,819 patients, the prevalence of self-reported current or historic cannabis use was 10.1%. Patients of younger age, male sex, White race, single status, unemployed, ability to communicate in English, history of mental health problems, and history of non-adherence were more likely to use cannabis. Cannabis use, when compared to non-use, was associated with a lower likelihood of KT clearance (adjusted hazard ratio 0.81 [95% CI: 0.69, 0.95]). When cannabis use status was divided into current and past users, the association was more notable for current users (adjusted hazard ratio 0.75 [95% CI: 0.57, 0.98]) than past users (adjusted hazard ratio 0.85 [95% CI: 0.69, 1.03]). Once cleared for KT, current or past cannabis use did not predict the subsequent receipt of deceased or living donor KT (adjusted hazard ratio 0.98 [95% CI: 0.82, 1.18]).

Conclusion: Cannabis users are less likely to be cleared for KT but time to KT after wait-listing is not affected by cannabis use status. The reasons for decreased access to the wait-list, the development of better addiction screening processes, and reducing inequities in the evaluation process, require further study.

Abstract 58

Presenting Author: Stella Fang **Institution:** St. Paul's Hospital

Abstract Title: Best Possible Medication History (BPMH) by Pharmacy Technician in Post-Kidney Transplant Clinic

Abstract Body:

Background:
Post-kidney transplant patients are often taking complicated drug regimens and agents with narrow therapeutic indices. As a result, they are at high risk for adverse drug events and non-adherence. Patients can benefit from routine best possible medication history (BPMH) conducted at outpatient clinic visits. This is currently limited by constraints on healthcare resources.
Methodology:
In this retrospective, descriptive study, all kidney transplant recipients attending in-person or virtually at the Post-Kidney Transplant Clinic were included. A pharmacy technician compared current provincial drug dispensing records, various hospital electronic health records (EHRs), and/or patient interviews to identify discrepancies for the pharmacists to review. The primary objective was to demonstrate the value of conducting routine BPMHs in post-kidney transplant outpatients, and the role a pharmacy technician can play. This was done by characterizing the number and types of discrepancies and the number and types of drug therapy problems (DTPs) found.
Results:
During a 4-month period, 1696 discrepancies were identified in 728 documented patient records and/or interviews. 55% were intentional discrepancies, defined as undocumented changes made by health care professionals. 45% were unintentional discrepancies, defined as changes made by the patients themselves. Of the 312 potential or actual DTPs identified, 70% were related to patient non-adherence. 10% of all discrepancies involved transplant-related medications, including immunosuppressants, sulfamethoxazole/trimethoprim, or valganciclovir. Of the unintentional discrepancies, 11% involved transplant-related medications.
Conclusion:
An adequately trained pharmacy technician is equipped to review medication records and conduct BPMHs. Undocumented health care provider interventions and patient non-adherence were prevalent discrepancies identified. Routine BPMH and regular review of relevant medication records are essential steps in the care provision of kidney transplant recipients.

Abstract 59

Presenting Author: Vanessa Silva e Silva **Institution:** CHEO-RI

Abstract Title: CDTRP Allied Research in Donation and Transplantation: the ARDOT Working Group

Abstract Body:

Introduction
Improvements in organ donation and transplantation outcomes frequently involve allied health (AH) care and interventions. AH professionals (nurses, physical therapists, psychologists, pharmacists, etc.) working in organ donation and transplantation are well-positioned to contribute to research in these areas but experience daily challenges in the healthcare system. Their workload and lack of access to research resources often prevent their contribution to science. Thus, we proposed to the leadership of the Canadian Donation and Transplantation Research Program (CDTRP) to create an international working group to bridge contributions of AH professionals to clinical advancements through research and to align with other CDTRP groups engaging AH, such as the CDTRP Exercise, Nutrition and Mental Health & Wellness research hubs.

Methods
This group is being developed through a participatory approach. We advertised the first working group meeting on social media and the CDTRP's webpage with a link for registration. We conducted online Zoom meetings aiming to: (1) provide research support; (2) promote interprofessional collaboration between clinical and academic areas; and (3) promote a participatory approach to research addressing needs at the endpoint of care.

Results
To date, the ARDOT group has 21 members from multiple countries (Brazil, Iran, Spain, and Canada) and has met three times. Participants share their research studies and ideas and seek support, such as research consultations for research question conceptualization, methods choice, research development; research experts on AH-related topics; grant application guidance; identification of interprofessional, international collaboration opportunities; knowledge translation planning. The next step is to engage patient partners.

Conclusion
This group will increase scientific production and knowledge translation (e.g., development and implementation of guidelines, patient safety and process improvement tools) in areas related to nursing and other AH professionals in organ donation and transplantation processes and patient care.

Abstract 60

Presenting Author: Vanessa Silva e Silva **Institution:** CHEO-RI

Abstract Title: Organ donation after medical assistance in dying: Preliminary results from a scoping review

Abstract Body:

Background
Organ donation (OD) following Medical Assistance in Dying (MAiD) has been legal in Canada since 2015. In 2021, Bill C-7 changed the eligibility criteria for MAiD, including safeguards, potential to waive the requirement for final consent at time of MAiD procedure for reasonable natural

foreseeable death, and expanding reporting requirements of MAiD procedures. To support updates in the practice guidelines, to ensure safety and ethically acceptable procedures for OD following MAiD, we investigated what is known about OD following MAiD worldwide.

Methods
This scoping review followed the Joanna Briggs Institute methodology. Databases searched: MEDLINE, Embase, CINAHL, PsycINFO, Web of Science, and Academic Search Complete, and grey literature requested from Canadian organ donation organizations. The search strategy included the main concepts of OD and MAiD with no limitations on language or date. Data screening and extraction was conducted by two independent reviewers using a data extraction tool developed and pilot tested by the reviewers. We collated the results using a descriptive numerical summary and a content analysis approach.

Results
Our search retrieved 2557 documents and 111 articles were included. The data analysis is ongoing, but to date, included documents originated from Canada (n=42, 37.8%), the Netherlands (n=37, 33.3%) and Belgium (n=13, 11.7%); and were reflective/ethical discussions (n=19, 17.1%), protocols/guidelines (n=14, 12.6%), editorials (n=11, 9.9%) and conference abstracts (n=10 ,9%). The thematic analysis approach yielded 8 themes: definitions, legislation, and practice; increase organ donor availability, MAiD processes and procedures, roles, perceptions, and education; ethics, dilemmas, and consensus, MAiD and the public; quality assurance; and suggestions for future studies.

Conclusions
Results of this scoping review informed discussions during the Organ and Tissue Donation after Medical Assistance in Dying: Guidance for Policy Update Forum, held in June 2021, and will serve to support revisions to the current guidance for policy in Canada.

Abstract 61

Presenting Author: Victoria Smith **Institution:** Dalhousie University

Abstract Title: How does tumor viability influence the predictive capability of the Metroticket model?: Comparing predicted-to-observed 5-year survival after liver transplant for hepatocellular carcinoma

Abstract Body:

The Metroticket Project produced prognostic calculators for patients undergoing liver transplant (LT) for hepatocellular carcinoma (HCC). Radiology-based, and pathology-based calculators predict 5-year HCC-specific and overall survival respectively. Our goal was to evaluate how viable tumor burden at explant, impacts the predictive capability of the Metroticket models.

A retrospective cohort analysis of HCC LT patients from 1996-2019 was conducted. Locoregional therapy (LRT) data, radiographic parameters, and explant pathology findings including tumor

viability were collected. Metroticket predicted survival was calculated. Tumor response to LRT was assessed. Radiographic total tumor volume (TTV) and explant total viable tumor volume (TVV) were correlated. HCC-specific survival of these subgroups was assessed using Kaplan-Meier curves, and compared via Log-rank testing. Predicted and observed survival were compared by patient subgroups.

Eighty patients were included. TTV and TVV correlated strongly (Pearson's r=0.98, p<0.01), with imaging overestimating TVV by 42.1%. There was no significant difference in HCC-specific survival if patients underwent LRT (p=0.50), regardless of tumor response (p=0.85). Nor if tumors were viable (p=0.10), regardless of viable tumor burden (p=0.74). Similarly, presence of microvascular invasion (p=0.73) or satellitosis p=0.99) did not influence HCC-specific survival. Observed 5-year overall survival was significantly lower than predicted by the Metroticket for patients with viable tumors (66.3% vs. 61.8, p=0.03). This finding was amplified in patients without vascular invasion (78.9 vs. 66.7%, p<0.01). Patients with viable tumors and presence of microvascular invasion, demonstrated overall survival significantly greater than predicted by the Metroticket (60.6 vs. 51.7%, p<0.01).

Here, HCC-specific survival does not appear to be affected by LRT, or burden of viable tumors. However, tumor viability appears to influence predictive capability of the Metroticket model, varying with presence of microvascular invasion. Integrating tumor viability in the Metroticket model may augment its efficacy.

Abstract 62

Presenting Author: Yigang Luo **Institution:** University of Saskatchewan

Abstract Title: Novel Swift Cold flushing Cannulation for Organ Procurement

Abstract Body:

Swift cold flushing on donation after circulatory death (DCD) is critical to preserve organ quality. We designed a conceptual double balloon cannula, which allows to block off the upper and lower parts of the abdominal aorta (AA) swiftly without clamping and tie.

An ex vivo model with a simulate AA was used in this study. The double-balloon cannula was used in the experimental group (G1), while the conventional cannulation with cross-clamping and tie was used in the control group (G2). Ten trials were performed in each group.

In G1, a PHYCON (I.D. 7.0mm, O.D. 10.7/12.5mm ORAL) endotracheal tube was used as the double-balloon cannula, a 1/2" Penrose with 4 small holes (renal arteries, celiac artery, and superior mesenteric artery) was used to simulate AA, a 1000mL KangarooTM gravity feeding bag filled with tap water was used for perfusion. In G2, the same simulate AA and perfusion set, along with a Kelly clamp, silk tie and a conventional cannula, MAQUET 21 Fr were used. Anova statistic testing was used in data analysis.

The results shew that the mean time to the start of flushing (which stands as warm schema time) was 49.6 seconds in G1 and 61.3 seconds in G2, p=0.007. Flushing rates were 575mL/3min in G1 and 620.5mL/3min in G2, p=4.1. There were no leaks in G1, but there were small leaks in 2 of 10 trials in G2.

This study proved the concept of using a novel double-balloon cannula in organ procurement. It can be used safely and reduce the warm ischemia time significantly, especially in consideration of avoidance of the time spent on exposure and clamping of the upper part of AA. Potentially it will be very useful in DCD procurement.

Abstract 63

Presenting Author: Janet Li **Institution:** University Health Network, ON

Abstract Title: The YinYang Balance of Healing: A Qualitative Study of Barriers to Living Kidney Donor Transplantation in Chinese-Canadians

Abstract Body:

Background: Chinese-Canadians (CC) have increased risk of kidney failure and are substantially less likely to receive living donor kidney transplant (LDKT), compared to Whites. Research suggests that potentially conflicting health beliefs, values, and practices between Western and Traditional Chinese Medicine (TCM) may contribute to barriers limiting willingness of CC to consider LDKT. In this analysis we use qualitative data from a mixed-methods study seeking to understand barriers to LDKT among CC. Methods: Purposive and snowball sampling were used to recruit CC patients and community partners to participate in semi-structured interviews conducted over the phone/ MS Teams in the participant's preferred language(s) (English, Mandarin/Cantonese). Open-ended questions were asked about transplant-related knowledge, attitudes towards kidney transplantation, and cultural factors. Audio was recorded, transcribed, and analyzed via thematic analysis using inductive and deductive development of codes, categories, and themes. Results: Six participants (1 LDKT recipient, 1 live-kidney donor, 4 participants without kidney failure experience; 3 females) were interviewed and described cultural and contextual factors influencing their views and experiences of LDKT. Conflicting values between TCM and Western medicine is emerging as a major theme. Identified sub-themes include importance of integrity of both kidneys for overall well-being of the individual. This may induce concerns about donating one kidney, in spite of its very low risk from a Western, physiological point of view. Participants also expressed preference for non-invasive traditional herbal remedies. Our interviews suggest that experience with kidney disease/failure and with the Canadian healthcare system may increase acceptance of Western medical practices over TCM. Conclusion: In this preliminary analysis we found that TCM values and practices (e.g. emphasis on balance, use of herbal remedies) may influence attitudes of CC towards LDKT and live kidney donation. Culturally tailored, comprehensive information about kidney disease and kidney failure treatment options may improve access to LDKT for CC.

Abstract 64

Presenting Author: Keira Gaudet **Institution:** Université de Montréal

Abstract Title: Strategies Used by Employed Patients to Support Their Work Capacity Before and After Transplantation: A Focus Group Study

Abstract Body:

INTRODUCTION: Maintaining work before and after undergoing organ transplantation requires significant efforts on the part of patients. On average, approximately 40% of employed end-stage liver, kidney and lung disease patients become unemployed before they undergo transplantation. Patients who leave the workforce before the transplant tend to not return post-transplant. Nonetheless, some do return to gainful employment. Contrary to other patient populations, there is little data regarding strategies used by patients to maintain and return to work. The present study thus aims to describe the strategies used by patients to maintain employment before and after undergoing organ transplantation.

METHODS: A total of 18 employed liver, kidney and lung transplant recipients were recruited at the Montreal University Hospital Center (CHUM). Interviews were conducted with all participants individually, and three focus groups were held with the same patients. Data was analyzed following the Miles, Huberman and Saldana (2013) method.

RESULTS: Before the transplant, participants used a number of strategies to support their work capacity: (1) Adopting self-care practices that support mental and physical health; (2) Limiting activities outside of work; (3) Communicating with their immediate supervisor in a proactive, yet informed way; (4) Reducing their work load by modifying tasks. After transplantation, participants used strategies adapted to their return-to-work: (1) Pacing their work to fit their changed capabilities; (3) Collaborating with key return-to-work stakeholders (insurers, health-care professionals, immediate supervisor, colleagues).

CONCLUSION: Patients identified a number of strategies geared towards maintaining employment as long as possible before transplant, and complementary ones to return to work afterwards. Healthcare providers and immediate work supervisors can be significant allies to support the continued employment of organ transplant recipients. Intervention by transplant teams could include fostering self-management of transplant-related symptoms while at work and helping them develop skills to improve communication in the workplace.

Abstract 65

Presenting Author: Sibele Maria Schuantes Paim **Institution:** Federal University of São Paul

Abstract Title: Bundle of care: developing the family interview for child and adolescent organ donation

Abstract Body:

Background: The unexpected death of a child or adolescent causes unexpected responses in the grieving process. When the death comes from a neurological injury, that is, a Brain Death, it is even more challenging. In the subject of organ and tissue donation, the family interview is one of the most complex and difficult stages of this process because it covers individual issues. Therefore, the objective of this study was to elaborate a bundle of care guidelines for best practices in conducting the family interview for organ and tissue donation with the families of children and adolescents. Methods: Methodological study with a qualitative approach, guided by the Appraisal of Guidelines for Research & Evaluation II (AGREE II) and the theoretical model of family interview of Alicante in Spain. The stages of the study were: integrative literature review, qualitative study, development of the bundle and evaluation by professionals with expertise according to AGREE II. Results: Nine studies from the integrative review were used. In the qualitative stage, 17 professionals with experience in family interview and nine family members who had already been through an interview were interviewed. The bundle was structured with guidelines and recommendations according to the following stages: communication of death, emotional support and information about organ and tissue donation. Conclusion: The prepared bundle clarifies how each step should ideally follow, according to the literature, the assessment of professionals involved in this process and family members. The material produced can help professionals in conducting the interview, providing them with tools for the critical steps, which will impact the quality of care and welcoming to the bereaved families and possibly reduce family refusal to donate organs and tissues.

Abstract 66

Presenting Author: Yulia Vaisbourd **Institution:** McGill university

Abstract Title: Differences in medication adherence between young kidney, liver, and heart transplant recipients

Abstract Body:

Background: Graft failure rates and rejection rates differ by organ type. Differences in adherence to immunosuppressive medication may contribute to different failure and rejection rates by organ type. We aimed to compare immunosuppressive medication adherence between kidney, liver, and heart transplant recipients.

Methods: This Canadian multicenter prospective observational cohort study of prevalent kidney, liver, and heart transplant recipients 14 to 25 years old assessed adherence 3 times (0, 3, 6 months) using the BAASIS self-report tool. At each visit, participants were classified as adherent if they missed no doses in the prior 4 weeks. We used multivariate mixed effects logistic regression accounting for repeated measures within participants and clustering by program. Models were adjusted for age, race, parent vs. self as primary caregiver, medication insurer, time since transplantation, number of medications and program level factors: minimum number of blood draws/year, average time spent with the nurse in clinic, same nurse at all clinic visits, availability of a clinical pharmacist and whether self-management interventions were offered by their program.

Results: Of the 184 kidney, 58 liver and 28 heart recipients, the median age (IQR) was 20.2 (17.2, 23.2) and 55.6% were male. At baseline, 73% of kidney, 68% of heart, and 67% of liver recipients were adherent. Liver recipients had the poorest adherence in unadjusted analysis (liver vs kidney OR 0.4, 95%CI 0.2-0.97, p=0.04; heart vs kidney OR 0.6, CI 0.2-2.1, p=0.45), but adjusted analyses showed no significant differences in adherence between organs (liver vs kidney OR 0.5, 95%CI 0.2-1.5, p=0.24; heart vs kidney OR 0.5, 95%CI 0.1-2, p=0.34).

Conclusion: After adjustment for potential confounders, we found no significant differences in adherence between young kidney, liver and heart recipients. The contribution of differences in adherence to differences in graft failure and rejection rates by organ type remains uncertain.

Abstract 67

Presenting Author: Amber Hager **Institution:** University of Alberta

Abstract Title: Is myopenia associated with adverse neurodevelopmental and clinical outcomes in infants and children with end-stage liver disease (ESLD) undergoing liver transplantation.

Abstract Body:

Background: Little is known whether myopenia (reduced skeletal muscle mass [SMM]) contributes to neurodevelopmental delay in children with ESLD undergoing liver transplantation (LT). We hypothesized that pediatric myopenia was associated with significant neurodevelopmental delay.
Methods: This retrospective study evaluated neurodevelopment using Vineland Adaptive Behavior Scales® (Individual [communication, daily living skill, socialization, motor skill; age typical fine/gross motor function (y/n)] and composite domains [adaptive behavior composite (ABC)] raw scores, percentiles) and body composition (CT/MRI), in children (0.3–7.4 yrs) undergoing LT assessment (LTA). SMM and adipose tissue (visceral/subcutaneous[SAT]) determinations were done at L3 vertebrae. Myopenia was defined as SMM index (cm2/m2) z-score <-1.5. Demographics (age, liver disease diagnosis, PELD), anthropometrics (weight, weight-z, height, height-z, BMI, BMI-z), complications (rejection, ascites, varices hepato-renal/pulmonary syndrome, mortality), biochemistries and length-of-stay (LOS; hospital/ICU) were included.
Results: Fifty children (24M, 26F) with a median (interquartile range[IQR]) age of 0.6 (0.4–1.0) yrs at LTA were included. Gross and fine motor function was below age-appropriate reference ranges for 64% and 33% of children respectively. Myopenia occurred in 10% (n=5; 5M) of children. Patients with myopenia had significantly lower mean ABC scores (myopenia: 75±7(+) vs. 92±11(–); p=0.006) and ABC percentiles (myopenia: 6±7(+) vs. 34±22(–); p=0.01) and median(IQR) socialization scores (myopenia: 84(75-97)(+) vs. 97(91-103) (–); p=0.03). Myopenia was also associated with higher incidence of hepatopulmonary syndrome (myopenia: 20% (+) vs. 0%(–); p=0.003). No differences were seen between myopenic children for other complications (varices, ascites, hepatorenal syndrome), outcome variables (LOS, rejection, mortality), age, anthropometrics, biochemistries or other neurodevelopmental domain scores.

Conclusion: Myopenia is associated with delays in some domains of neurocognitive development (ABC composite and socialization) but not post-operative complications or length of stay.

Abstract 68

Presenting Author: Yulia Vaisbourd **Institution:** McGill university

Abstract Title: Gender differences in medication adherence among adolescent and young adult solid organ transplant recipients

Abstract Body:

Background: Gender differences in adherence to immunosuppressive medications may play a role in the higher graft failure rates that have been observed in young female than male kidney and heart transplant recipients. However, prior work showed better electronically-monitored adherence in females than males, but poorer adherence in females based on standard deviation (SD) of tacrolimus levels. We aimed to compare immunosuppressive medication adherence assessed by self-report and by tacrolimus SD between male and female solid organ transplant recipients

Methods: This multicenter prospective cohort study of prevalent kidney, liver, and heart transplant recipients 14-25 y assessed adherence 3 times (0, 3, 6 months) using the BAASIS self-report tool. At each visit, participants were classified as adherent if they missed no doses in the prior 4 weeks. Standard deviation (SD) of tacrolimus trough levels (6mo before to 6mo after the first visit) was also assessed; a SD <2.0 was classified as adherent. We used multivariable mixed effects logistic regression accounting for repeated measures within participants and clustering by program. Models were adjusted for parent vs. self as primary caregiver, caregiver education, medication insurer and time since transplantation.

Results: At baseline, 69% of the 150 males (median age 20.4y, IQR 17.2-23.3) and 74% of the 120 females (19.8y, IQR 17.1-22.7) were adherent by self-report, whereas 66% of males and 56% of females were adherent by tacrolimus SD. Across all visits, males were significantly less likely to be adherent than females by self-report (OR 0.4, 95%CI 0.2-0.8) but more likely to be adherent by tacrolimus SD (OR 2.2, 95%CI 1.2-3.9).

Conclusion: Females show better self-reported adherence than males but greater variability in tacrolimus levels. Higher tacrolimus variability among females may contribute to previously observed higher graft failure rates in females than males, but factors other than medication adherence may influence SD of tacrolimus levels.

Abstract 69

Presenting Author: Danielle Judd **Institution:** University of Manitoba

Abstract Title: A Scoping Review of Siblings of Children with Chronic Kidney Disease

Abstract Body:

Background. Children with chronic kidney disease (CKD) and/or who undergo renal transplant therapy and their families deal with challenging circumstances. While research has shown that parents can experience mental health difficulties and psychosocial concerns, siblings in these families are often overlooked by both researchers and health professionals. Although research has begun to address the sibling experience (e.g., most often with pediatric cancer patients), work on siblings of children with CKD is rare. This scoping review focused on work addressing these siblings.

Methods. Our main research question was: "What is known from the existing literature about the experiences and well-being of siblings of children with CKD and/or who undergo renal transplant therapy?". Any type of peer reviewed study published in English that included siblings (biological, step or foster) aged 25 years or younger, published in any year or location was included. Unpublished graduate theses were also included; published studies and theses in languages other than English and grey literature were excluded.

Preliminary Results. Of the 263 published studies identified in Medline, six fit the inclusion criteria. One was qualitative, two were quantitative and three were mixed-method. These studies identified fear and anxiety as common psychosocial adjustment issues for siblings; one addressed resilience and/or posttraumatic growth.

Conclusions. Several unmet needs uncovered by this review point towards potential avenues for future interventions tailored to the unique needs of siblings of children with CKD. More research is needed concerning their resilience and posttraumatic growth experiences.