and saved 40\% (p=0.0002, n=10) of count time. To perform IF after HEC, prolonged washing in PBS is an effective method to remove residual Calcein fluorescence and allows release of the FITC/Alexa 488 filter.

Conclusion This study provides effective technical tips for optimizing the endothelial viability assay using Calcein AM and for performing IF after the viability assay.

**P39-A145 ANALYSIS OF CORNEA DONATION PROGRAM IN CROATIA**

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**Purpose** Croatian Tissue and Cell Bank (CTCB) regularly monitors the effectiveness of cornea donation program on the national level. All hospitals are required to have designated tissue donation coordinators in charge of detection, family interview and tissue procurement. If hospital has cornea donation program only from donors after brain death (DBD), tissue donation coordinator can be the same as for organs. Five collection centres have cornea donation program for donors after circulatory death (DCD) with designated cornea donation coordinators.

**Methods** We retrospectively analyzed all monthly reports from tissue donation coordinators in the period from May 2019 to September 2022. Additional data was collected from national organ and tissue database Croatian National Transplantation Network (NTM).

**Results** During the analyzed period, 25,753 deaths were recorded, from which 38.6\% to 54.7\% of DCD and 0.6\% to 1.1\% of DBD donors were considered for cornea donation, depending on the hospital. Out of all deceased, 2\%4\% to 5.2\% of patients were realized as cornea donors, 0.4\% to 0.5\% of which were DDB and 2\% to 4.7\% were DCD. Cornea donations were realized in 18.2\% to 38.9\% cases of all DBD donors. As SARS-CoV-2 pandemic has strated in March 2020, the cumulative number of donations declined for 26.1\% in 2020 and 12.1\% in 2021, compared to the pre-pandemic 2019. Moreover, CTCB received 30.5\% less DCD in 2020 and 21.9\% less in 2021. Despite that, we recorded increase in DBD during 2020 and 2021, for 13.3\% and 44.7\%, respectively. The same trend continued throughout 2022, where only until September 16.1\% more DCD were received than in the whole 2019.

**Conclusion** Hospitals involved in cornea donation program record high number of deaths, however only a small proportion of which are realized for cornea donation. This is particularly pronounced in DBD donors. SARS-CoV-2 pandemic left significant impact on donation program. However, CTCB recorded higher number of DBD donors during that period. The current situation leaves plenty of room for improvement of CTCB and corresponding donation hospitals, to increase disproportionately low rate of cornea procurement in respect to the total rate of deaths and considered donors.

**P40-A122 HOW TO ESTABLISH SUCCESSFUL NETWORKING: EDUCATIONAL TRAINING & EXCHANGE OF EXPERIENCES**

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**Introduction** Educational training within eye bank staff is needed to fulfill legal requirements and to keep staff up-to-date in times of rapid change and innovation.

Especially when starting with eye banking a good and close contact to experienced colleagues could be of great benefit for both parties – the newcomers and old stagers.

**Purpose** The exchange of experiences and the mutual support in key processes of eye retrieval and banking contributes to the establishment of a structured and functional cooperation with the further goal of establishing a successful network far beyond the national borders.

**Materials and Methods** In July 2018 a first visit of Hornhautbank Munich team in Malta was organized followed by a visit of Malta staff members in November 2018 and July 2019 and a further visit in August 2022 after a longer pause related to Covid-pandemic.

The SOPs of both facilities were compared with regard to local regulations and analyzed to assess how they can best be implemented taking into account local regulations and conditions.

Hands-on training in in-situ-excision and the evaluation of the retrieved donor corneas using slit lamp- and endothelial-microscopy deepened the theory for practical implementation.

**Results** Training materials have been loaned to the team in Malta for further training, and joint online meetings are planned for further training and sharing of difficult case reports to provide the team with appropriate assurance in all eye bank areas.

Such cooperation has increased the confidence of the teams and supported the licensing inspections by competent authorities.

**P41-A155 FLYING HUMAN CORNEAL TISSUES FOR TRANSPLANTATION – A TRANSPORT NETWORK CONNECTED BY DRONES**

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**Purpose** Transportation of human corneal tissue for transplantation always needs to be conducted in a timely manner. For this reason, even single corneal tissue samples are frequently transported by cars. This causes higher operational costs, increases the traffic load, and contributes to environmental pollution in general. Because of their small size, it is technically possible to transport corneal tissue transplants by unmanned aerial vehicles (UAV), more commonly referred to as drones. Such way of transportation would be faster,
Methods We conducted an interdisciplinary workshop as part of a larger project called EULE (European UAV-based solutions for transportation of medical goods), funded by the German Ministry for Digitalization and Traffic (BMDV). Together with the Cornea Bank based at the RWTH University Hospital in Aachen, Germany and several project partners specialized in drone technology and aerial transportation, we identified the specific requirements of such a concept.

Results Typical transport routes have been identified that correspond to the range of the UAV. Initially, the payload area of the intended flight system was too small. As a result, the transport vessel for corneal tissue had to be downsized to be placed horizontally in the payload area. Also, the packaging material needed to be modified for the same reason. In addition, sensors had to be integrated to monitor the conditions during transport.

Conclusion Because of the mentioned modification in the transportation packaging and the lack of clarity on possible side effects of this novel kind of transportation on human corneal tissue, a field study needs to be conducted on corneal samples not intended for transplantation to evaluate the proposed concept. We plan on conducting 20 test flights and compare the condition of corneal tissue samples before and after each flight. Also, paired corneal samples will be transported by a car in a control group. We will begin with the first test flights after acquiring permission to fly on the designated route, expected in first quarter of 2023.

During the recent years Descemet membrane endothelial keratoplasty (DMEK) has replaced penetrating keratoplasty and more or less Descemet stripping automated endothelial keratoplasty (DSAEK) as the gold standard for the treatment of endothelial corneal diseases. Following DMEK the clinical recovery is faster and patients reach higher visual acuities with a lower risk for graft rejection. However, the technique of preparing the graft for DMEK is more demanding and less standardised than the preparation of a DSAEK graft. Therefore, the preparation may take longer and risk of a preparation failure seems higher. For this reason surgeons look for prestripped tissue for DMEK to avoid the potential inconveniences with the graft preparation. However, prestripped tissue might not always be advantageous as the graft might lose endothelial cells during storage and transportation and the surgeon is not aware of the specific properties of the graft. Advantages and disadvantages of eyebank stripped and surgeon stripped tissue will be discussed.

Purpose To evaluate the efficiency of using anterior segment optical coherence tomography (AS-OCT) as a non-invasive and sterile screening method in the eye bank to detect corneal grafts with curvature and/or thickness anomalies, thus improving the graft selection for corneal transplantation. Methods 1222 donor corneal tissues mounted in sterile organ culture flasks were imaged using an AS-OCT (CASIA 2 – Tomey, Nagoya, Japan) between January 2018 and September 2022. The corneal tissues were preserved at least 12 hours in organ culture medium 2 (containing 6% dextran T-500) before the measurement in order to allow deswelling prior to the examination. Depth scans were performed stereily through the organ culture flask from the posterior surface of the corneal tissues within a 7 mm central zone to create 3D volume data. The volume data set was imported to MATLAB (MathWorks Inc., Natick, Massachusetts, USA) and, after preprocessing the data and defining the region of interest (ROI), the edge of the front and back surfaces of the corneal tissues was detected. Subsequently, the adaptation of a spherocylindrical surface model was carried out with raytracing. The radii of curvature for the front and back surfaces and the central corneal thickness were determined according to the method proposed by Mäurer, Eppig, Langenbucher et al at the Institute of Experimental Ophthalmology, Homburg/Saar, Germany.

Results The mean steep/flat front surface radius was 7.46 ± 0.29 (6.07 – 9.29)/7.69 ± 0.24 (6.70 – 9.50) mm, the corresponding values for the back surface being 6.48 ± 0.32 (5.30 – 8.00)/6.80 ± 0.31 (5.81 – 8.00) mm and the mean central thickness was 611.5 ± 85.6 (378.5 – 1457.2) μm. Anomalies (beyond ± 2 or ± 3 standard deviations SD) were found in 111 or 41 corneas (9.1% or 3.4%) for anterior surface curvature, 135 or 38 for corneas (11.0% or 3.1%) for the posterior surface, and 53 or 15 corneas (4.3% or 1.2%) for central corneal thickness.

Conclusion The AS-OCT provides an objective, sterile and semi-automated screening method to identify corneal morphological and refractive alterations (e.g. keratoconus, status post keratorefractive surgery) to further optimize corneal donor selection in the eye bank. Corneal donors with curvature or thickness abnormalities +/- 3 SD (eminence-based) do not have to be discarded but can be used for posterior lamellar keratoplasty, especially DMEK in Germany.