cheaper, environmentally friendly and would reduce the overall traffic load.

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 quartal of 2023.

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P42-A105 STERILE DONOR TOMOGRAPHY FOR IMPROVEMENT OF REFRACTIVE RESULTS AFTER KERATOPLASTY

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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 sterilely 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 sphero-cylindrical 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 anomalies +/- 3 SD (eminence-based) do not have to be discarded but can be used for posterior lamellar keratoplasty, especially DMEK in Germany.

P43-A106 EYEBANK STRIPPED VS. SURGEON STRIPPED TISSUE FOR DMEK

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During the recent years Descemet membrane endothelial keratoplsty (DMEK) has replaced penetrating keratoplasty and more or less Descemet stripping automated endothelial keraoplasty (DSAEK) as the goldstandard for the treatment of endothlial 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 perparation 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 loose 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.

P44-A104 LOGISTICS AND RESULTS WITH PRECUT AND PRELOADED GRAFT FOR DMEK

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Purpose Descemet membrane endothelial keratoplasty (DMEK) preparation is technically demanding and is a limiting factor for uptake of this kind of surgery. Supply methods that simplify the procedure for surgeons are key to increasing uptake.