



IET Award for International Travel 2023 – Report

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International Society for Heart and Lung Transplantation
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The International Society for Heart and Lung Transplantation (ISHLT) is one of the world's largest professional organisations dedicated to improving the care of patients with advanced heart or lung disease through research and education. Its annual meeting is amongst the most prominent conferences in the discipline and attracts cardiothoracic surgeons, academics, biomedical engineers, and health industry experts from around the world. The conference allows leading clinicians and researchers to share their knowledge and experience, discuss ideas and innovations, and make new connections.

Thanks to the IET Award for International Travel, I was able to participate in the 43rd ISHLT meeting. The scale of brilliant research being presented at this international forum was overwhelming. The sessions were held in the stunning Colorado Convention Center, featuring ground-breaking investigative research and presentations from scholars whose work I have long admired. Networking events provided a great opportunity for meeting people and building connections, while themed advice sessions were designed to offer support for researchers through all different stages of their careers. At one of the early career researcher events I attended, experienced scholars offered their recommendations for pursuing a career in academia and young researchers could socialise, share experiences, and feel supported as part of the research community. There was also an exhibition hall where industry partners shared information on the latest medical advancements and gave attendees the chance to preview new medical devices. The sense of community and social responsibility at ISHLT was particularly inspiring. Organisers hosted panels on important, often controversial ethical issues such as forced organ harvesting in China and health inequalities in Europe and the Americas. The

conference brought together people with different professional and disciplinary backgrounds around the common cause of improving patient care.

On the second day of the conference, I presented a poster, entitled ‘Computational Fluid Dynamics (CFD) as a Surgical Tool to Optimise the Positioning of the Left Ventricular Assist Device (LVAD) Outflow Graft for Reducing Aortic Regurgitation’. LVAD is a battery-powered mechanical heart pump which offers a lifeline for patients with end-stage heart failure, providing support for them until a compatible heart donor becomes available. The HeartMate III LVAD has improved the survival rate of patients with LVAD to over 50% at five years, but many patients still develop significant complications associated with adverse outcomes such as aortic regurgitation. The objective of the research is to use CFD to optimise the LVAD surgical procedure and minimise the risk of developing aortic regurgitation. The research involves collaboration with the UK’s leading cardiothoracic surgeons at Wythenshawe Hospital, Manchester, to validate the simulations and ultimately integrate the findings into clinical practice to improve the health and wellbeing of real patients with LVAD.



Photo 1: Presenting my work during Poster Session 2 on Cardiothoracic Surgery, April 20, 2023.

Presenting my work at ISHLT and publishing our results in its associated journal, *The Journal of Heart and Lung Transplantation*, is a vital step in this journey. During my poster session, I spoke to surgeons, cardiologists and biomedical researchers, who were all very engaged and asked some especially useful questions. The trip was an important bonding experience with the transplant team from Wythenshawe Hospital, who also attended the conference. I also had the chance to meet representatives from Abbott, the healthcare company which manufactures the HeartMate III LVAD. They showed great interest in our work and we had some useful discussions about its practical implications.

It was an immense honour to share our findings with medical practitioners and other researchers from all over the world. I made contacts that I know will be valuable for both my PhD and my long-term career. The conference affirmed the value of our research on LVAD in Manchester for both medicine and engineering. Indeed, the ‘Electric Cranks’, a cycling club of heart and lung transplant patients at Wythenshawe Hospital who use electric bikes to aid their

recovery and wellbeing, were the main feature of Abbott's publicity materials at the conference, a symbol of the impact of LVAD in transforming patients' lives.



Photo 2: Abbott stand in the Mile High Ballroom Exhibition Hall, featuring the HeartMate 3 LVAD (left) and three members of the 'Electric Cranks' from Wythenshawe Hospital (right).

My experience at ISHLT helped me to gain a deeper understanding of what medical practitioners need and what they want to know about this topic. Their useful feedback will help me to refine the focus of my research going forward. This has motivated me to think about the next steps of our work in relation to clinical practice and will be invaluable when it comes to publishing our results in medical journals. After bidding farewell to the famous 40-foot-high blue bear, which peers into Denver's Colorado Convention Center, I had the chance to discover the beautiful natural landscapes of Colorado and see the sights of 'Rocky Mountain High'.

I am truly grateful to the IET for supporting me to attend the 43rd Annual Meeting of the ISHLT in 2023. It was an amazing experience to share my work in this prestigious setting, to learn about cutting-edge research being undertaken in different countries, and to meet world-leading clinicians and researchers. This conference was a major milestone in my professional development and I am confident that it will transform not only my research but also my career as a whole. Participating in international conferences such as ISHLT can open up so many new opportunities and really challenge your critical thinking. For this reason, I would strongly encourage any PhD student or early career researcher to go for it and apply for an IET Travel Award.