Left ventricular assist devices (LVADs) have changed the landscape of how end stage heart failure is treated. Despite the inconvenience of drive lines and batteries, the improvement in quality of life that these devices offer patients is undeniable. Further advances in technology combined with better understanding of patient selection and refined surgical techniques have led to unparalleled outcomes in terms of 1-year survival. The indications for short-term devices, bi-ventricular devices and risk scores in minimizing post-LVAD heart failure have continued to propel this technology into the future.

In this special issue of the *Journal of Thoracic Disease (JTD)*, we have asked leaders in the field of mechanical circulatory support to offer their best current practices, share their institutional experiences in caring for these patients, and to speculate on what to expect for the future of LVADs. We are delighted to present state of the art reviews on topics of interest to the novice and the expert. We also sought contributions on areas that haven’t been covered as extensively in the peer-reviewed literature, and are optimistic that you will find this special issue an essential reference in your practice.