The Speaker: Barry has studied Biomedical Engineering since 2000. He completed a BEng (2005) and PhD (2009) at the University of Limerick, Ireland, where he then took up a Postdoctoral position before being awarded an IRC-Marie Curie Research Fellowship in 2010. As part of this Fellowship, Barry worked at The University of Edinburgh in the Centre for Cardiovascular Science and also the Medical Physics Department. During his time in Edinburgh he was also appointed as Honorary Fellow. He then won the UWA Postdoctoral Research Fellowship which brought him to Perth in December 2012.

In 2014, he established VascLab and was later that year awarded a NHMRC Career Development Fellowship.

The Seminar: We are all very aware of cardiovascular disease (CVD) and the impact it has across the world. Nearly everyone at this talk will know of someone who has suffered from CVD (e.g. heart attack, stroke, aneurysm, etc) or who was directly affected by the disease. Did you know that it kills roughly one Australian every twelve minutes; nearly 44,000 each year? Or that it is the most expensive disease group in Australia? Major research initiatives are underway across the globe to help reduce this death toll and its’ impact on families. In order to tackle the problem we need a transdisciplinary approach.

The Vascular Engineering group (VascLab) aims to contribute to Australia’s fight against CVD. At VascLab we use both experimental and computational techniques to help us better understand and treat the specific diseases that account for CVD. For example, experimental studies use animal models to create diseased vessels that are then biomechanically tested, allowing us to assess the structural impact of disease. This experimental research is often used to better inform our computational methods, which use medical imaging like CT or MRI as an input into a patient-specific modelling process. Our frameworks, for instance, enable the 3D calculation of blood flow within diseased arteries and vascular networks, or allow us to exactly predict where an aneurysm will burst in the future. A central goal of VascLab is to make these modelling tools accurate, fast and robust enough to be used in the clinic at the push of a button. This talk will present some of the research underway at VascLab and hopefully help forge new links with researchers in School of Anatomy, Physiology and Human Biology.