



ON THE MEND
Dr Rothman's medical innovations have helped hundreds of patients
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The secret to mending broken hearts

■ **Question:** What role has research played in pioneering cardiologist Professor Martin Rothman's work?

■ **Answer:** Through new technology and technique, quality of life for the very sick has dramatically improved

HOW I MADE IT

The roots of my success as a cardiologist and cardiac interventionist have long laid in innovation. Early on I recognised the need to kiss a lot of frogs to find the princes of ideas, which has pushed me further and kept me at the leading edge of research.

Cardiology is so dynamic: it's an area in which research and development of new ideas can have an impressive effect very quickly. For instance, in 2002 the first minimally invasive (percutaneous) human aortic valve implant took place; by next year at least 10,000 to 20,000 will have taken place. Innovation changes the lives of very sick people very fast.

The key is to be an entrepreneur in every sense. In 1980 my colleagues thought me cavalier for implementing an angioplasty programme; the same opinion was held of the coronary stent, first implemented in 1987 in the UK. Both seemed novel and dangerous - yet both are now main-



Martin Rothman
Cardiac Interventionist

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stream procedures.

Innovation in cardiology has dramatic effect. Both the health costs to the patient and the economic cost to the NHS of many cardiac procedures is considerable - there are the risks of surgery, infection, the need for intensive care and additional procedures such as renal dialysis. All these

INNOVATIONS FROM PROFESSOR ROTHMAN

Professor Martin Rothman is a consultant cardiologist and the director of Cardiac Research and Development, Bart's and The London NHS Trust.

He is the Honorary Professor of Interventional Cardiology, Queen Mary, University of London. His achievements include:

- Inventor on 25 patent families.
- Generated £4million in research income since 2002.

factors must be evaluated because the cost of a device can go up as the health costs it will place on the NHS go down.

Innovation might be expensive but presents a relative saving which is a great driver: we are all motivated to care for the patient better, to achieve a reduction in morbidity and

INNOVATIONS FROM PROFESSOR ROTHMAN

- Created VAD, a ventricular assist device, a fully implantable mechanical solution that reduces the need for heart transplant.
- Created a Chronic Total Occlusion (CTO) crossing device, a blood vessel blockage penetrator.
- Established PerQTech, an interventional cardiology products company with its lead project being the Ascending Thoracic Aortic Graft (ATAG) system.

to shorten hospital stay. Every year 250,000 people are diagnosed with end-stage heart failure, in which their condition seriously affects their life. It's highly unpleasant for them, a huge cost to the NHS and the only treatment is a heart transplant while medication is simply palliative. With energy engineers from Queen Mary, University of London, we are developing a fully implantable mechanical solution that if successful will alleviate these symptoms.

Another development is an ascending thoracic aortic graft, or ATAG - a prosthetic blood vessel using a catheter to re-establish blood flow around a diseased or damaged vessel section. ATAG will replace the current high-cost, high-risk procedure - for the patient it means far less intervention and a more minimal anaesthetic. ATAG addresses a significant market, could save thousands of lives each year and will generate valuable income for the Trust. Both of these innovations are being developed with the support from NHS Innovations London.

I'm building a research inheritance and a succession by training my juniors to continue.