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# Deep Venous Research

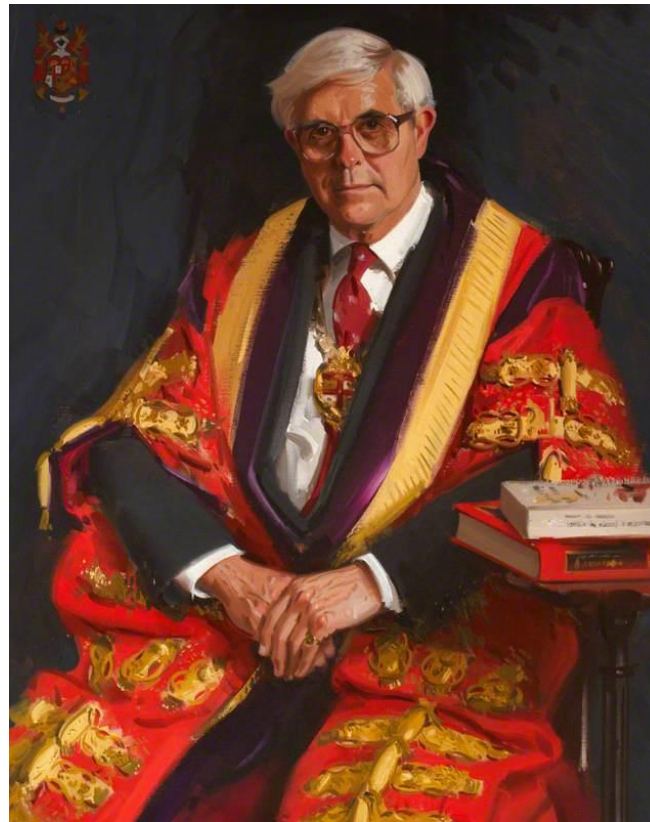
Stephen Black  
Consultant Vascular Surgeon and Reader in Venous Surgery

18/09/2019



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## Deep Venous Research at KHP





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## What research are we doing?

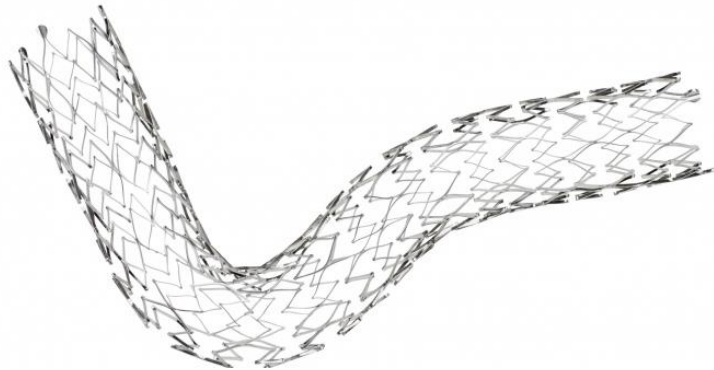
- Translational
- Clinical
- Epidemiological
- Health Economics







## First in Human



- Several first in human implants
  - VICI, VERTO, ABRE, VETEX
- Leading product development

clots used in patient for first time

Innovative device to remove blood clots used in patient for first time

### 2019 news

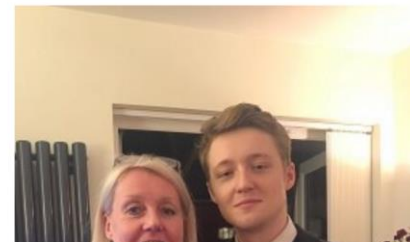
#### More in this section

- ▶ [News and events](#)
- ▶ [Events](#)
- ▶ [Past events](#)
- ▶ [News archive](#)

Posted on Thursday 4 April 2019

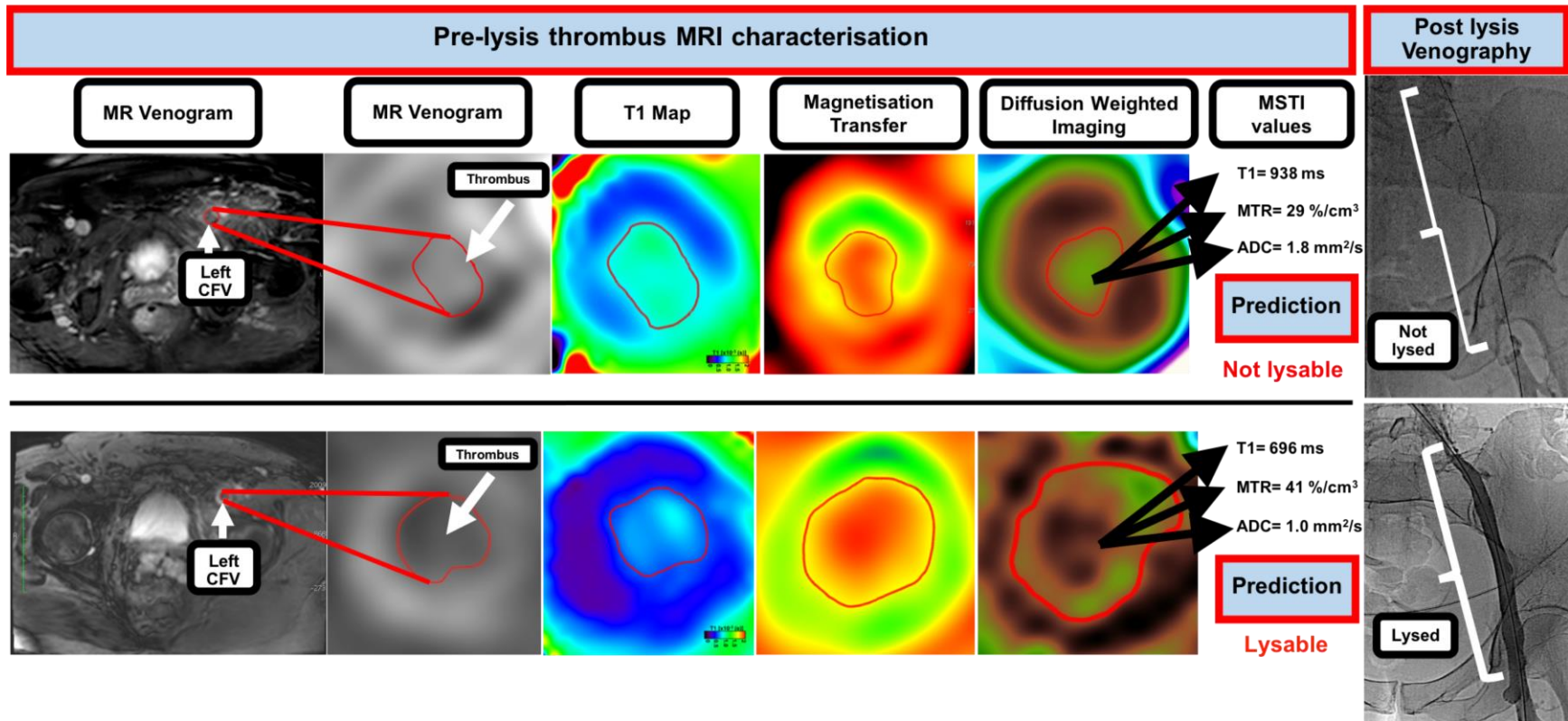
A deep vein thrombosis patient has been successfully treated with a revolutionary new clot-removing device at Guy's and St Thomas' NHS Foundation Trust.

Jackie Field, 55, was the first patient in the world to receive the experimental treatment. Surgeons treated her to remove a blood clot in her leg, which had developed after she had surgery.





# Clot Ageing



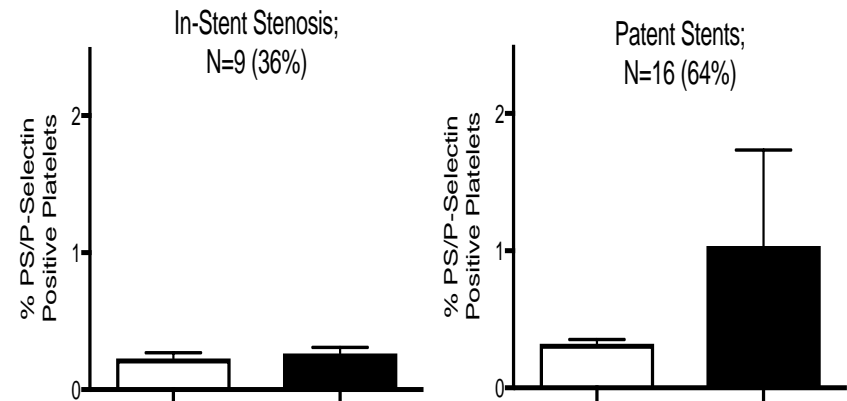
Saha, Silickas et al



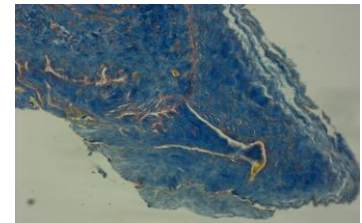
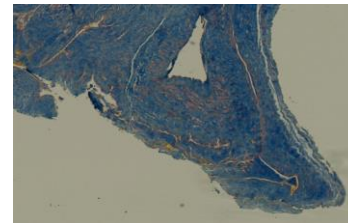
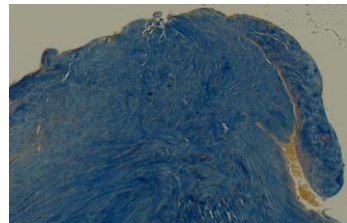
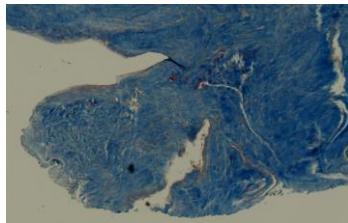
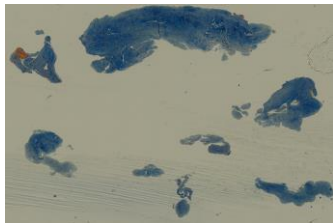
# Platelet Function and Stent Stenosis



- Do platelets play a role in stent stenosis?
- What is venous stenosis?
- What can we do to treat and prevent it?

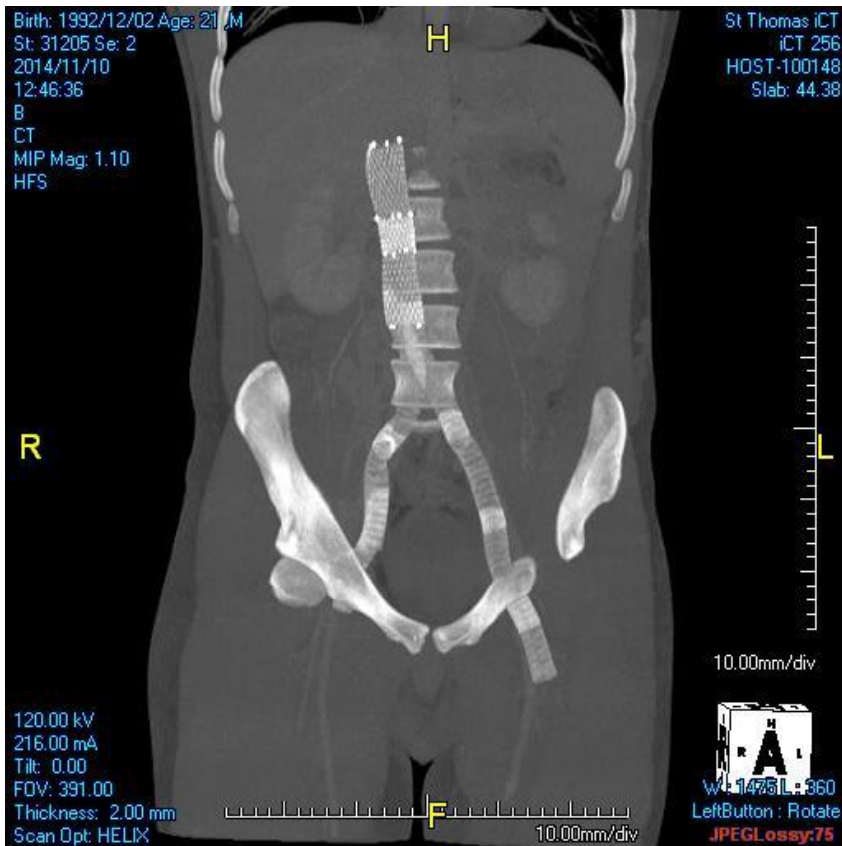


MSB





## Cardiac Function and Exercise



- Venous Return to the Heart
- Pre and post stenting
- Cross pollination to other fields
- Utilizes the broad skill at KHP





## LUPA



- Leg Ulcer Pathway Audit
- 110 Patients
- Rapid treatment
- Taken now too Cambridge, Oxford, Kaiser Permanente
- Collaboration with Industry Partners – BSCI/Medopad
- National influence to change NHS

£300,000 grant





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# Economics of Base LUPA Case

## Key Points

- The NHS will be able to save money implementing best evidence medicine – unprecedented results
- Hospitals will increase in revenue – although bottlenecks will remain until policies are changed (Oxford & Cambridge)

Old  
Pathway

*Healing Differences*

LUPA

UK WIDE (EPI & Economic Model)

65%

*Healing 12 month*

80%

14%

*Recurrence 12 month*

9%



**150K Ulcers**

*Economic Differences for Lambeth and Southwark*

**£36M**



*NHS Lamb. & SW.*

**£18M**

Save £3.6M/yr



*UK WIDE*

**£1.1B**

**Savings**

**£250K**

Leg Ulcer  
Revenue

*St. Thomas Hospital*



Guy's and St Thomas'  
NHS Foundation Trust

**£2.5M**

Leg Ulcer  
Revenue



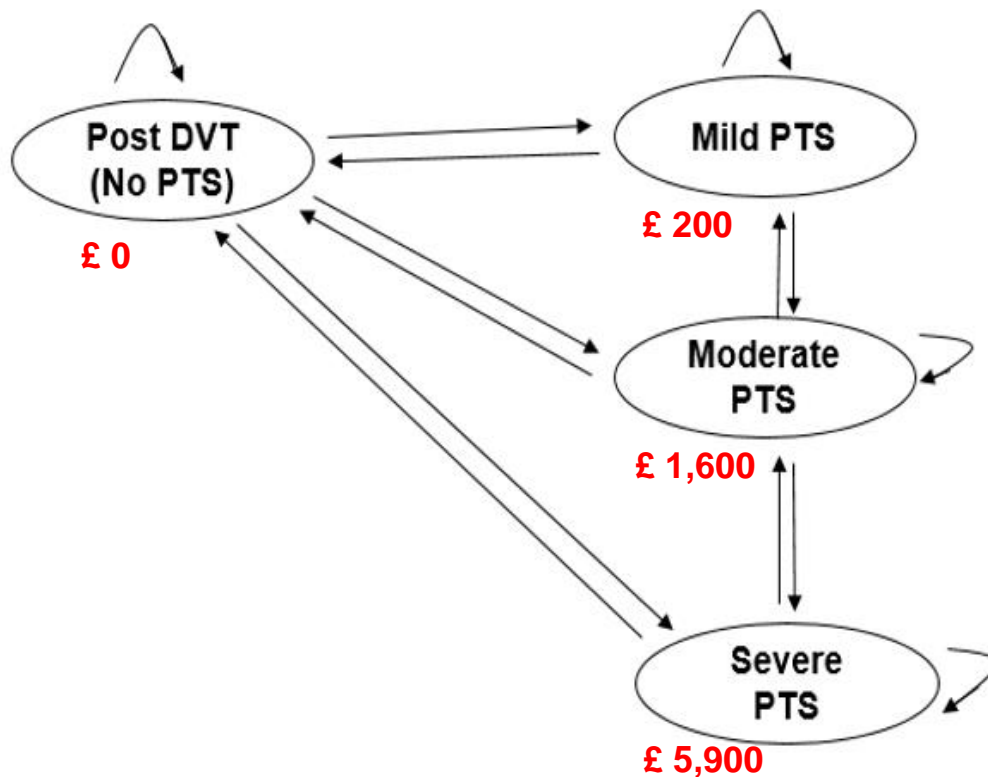
*UK Hospital Revenue*

**£1.6B**

**Revenue**



## ACUTE DVT HEA



1. Increasing cost with increasing severity due to increase in:

- Visits
- Testing and diagnostics
- Complication costs. i.e. infected ulcer

1. Cost capture a proportion of patients who are managed for venous leg ulceration

### **ATTRACT Trial (NEJM 2017)**

18% PCDT vs. 28% OAC moderate or severe PTS  
(p=0.021)



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PMT vs. OAC				
	Mean Cost	Inc. Cost	QALYs	Inc. QALYs
OAC	£40,166.16		13.99	
PMT	£36,151.08	-£4,015.08	14.20	0.21

*PTS and Acute Cost of each intervention over time.*

*Quality adjusted life years. Impact on quality of remaining life*




ICER (£/QALY):  
BASE CASE  
PMT is dominant

Increased cost in acute setting offset by long term cost-benefit  
Reduction of moderate/severe PTS



## Study Goal Overview



<b>Aim</b>	Address the conclusions raised by ATTRACT by: demonstrating the effectiveness of <u>pharmacomechanical</u> thrombectomy (PMT) in contemporary practice to reduce the incidence of Post-Thrombotic Syndrome in patients with iliofemoral DVT
<b>Treatments</b>	<ul style="list-style-type: none"><li>• PMT using Zelante DVT™ catheter with mandated IVUS and provisional venous stenting.</li><li>• Control arm: anticoagulation and compression</li></ul>
<b>Investigative Sites</b>	5 US and 1 EU (Cohort) additional 2 US and 2 EU (RCT)
<b>Patients</b>	Patients with symptomatic proximal DVT (common and/or external iliac, common femoral, with or without other veins involved, duration ≤14 d)
<b>Strategy</b>	<div style="display: flex; justify-content: space-around;"><div style="border: 1px solid black; padding: 5px; width: 45%;"><p style="text-align: center;">Phase 1: Cohort</p><ul style="list-style-type: none"><li>• N=65</li><li>• Acute outcomes</li><li>• Safety &amp; efficacy at 6 months → RCT</li><li>• PTS at 2 years</li></ul></div><div style="border: 1px solid black; padding: 5px; width: 45%;"><p style="text-align: center;">Phase 2: RCT</p><ul style="list-style-type: none"><li>• Sample size determined by Phase 1</li><li>• Acute outcomes</li><li>• PTS at 2 years</li></ul></div></div>

PI-#####-AA Oct.2018

£1,500,000 Grant with GSTT as global Sponsor





## Prizes, Publications and Training

- Regular Publications
- Prizes at International meetings
- National and International training



**American Venous Forum**  
Promoting venous and lymphatic health





## Conclusion

- Broad body of work
- Prize winning
- Global Reach
- Positions KHP as a dominant player in Deep Venous Research