

Supplemental Materials 1. Summary of Six HTA Randomized Controlled Trial findings

- Stroke: The Feed Or Ordinary Diet (FOOD) trial compared the proportion of patients surviving without disability after being admitted to hospital with a stroke and experiencing either nasogastric tube feeding or percutaneous endoscopic gastrostomy tube feeding. Nasogastric tube feeding was identified as the superior treatment.[1]
- Gastro-oesophageal reflux disease: The Randomised Evaluation oF Laparoscopic sUrgery for refluX (REFLUX) trial compared reflux severity after laparoscopic fundoplication to continued medical management. Surgery was identified as the superior treatment.[2,3]
- Abdominal Aortic Aneurysm: The EndoVascular Aneurysm Repair (EVAR) 1 trial compared mortality for patients after experiencing endovascular or open repair. Their 30-day results favoured endovascular repair.[4] EVAR 2 results compared endovascular repair to no surgery for patients unfit for open surgery and were more nuanced; thus, the current study focuses on EVAR 1.
- Knee Replacement: The Knee Arthroplasty Trial (KAT) compared patient-reported knee function and pain after a total knee replacement with or without patella resurfacing.[5] While the patient-reported outcomes did not differ, the cost-effectiveness analysis supported patella resurfacing.
- Varicose Veins 1: The Randomised and Economic Assessment of Conservative and Therapeutic Interventions for Varicose Veins (REACTIV)[6] trial compared patient-reported outcomes after experiencing surgery over conservative treatments. Surgery was identified as the superior treatment.
- Varicose Veins 2: The Comparison of LAser, Surgery and foam Sclerotherapy (CLaSS)[7] compared patient-reported outcomes after experiencing endovenous laser ablation, surgery, or sclerotherapy. Endovenous laser ablation was identified as the superior treatment.

Clinical Area	Trial acronym (year the trial was published in the <i>Health Technology Assessment</i> journal)	Relevant Comparison	Patient Inclusion criteria	Primary outcomes	Superior treatment
Stoke	FOOD (2006)	nasogastric vs percutaneous endoscopic gastrostomy feeding tubes	admitted to hospital with stroke	<ul style="list-style-type: none"> mortality poor outcome at follow-up (Modified Rankin Scale of 4 or 5) 	nasogastric feeding
Gastro-oesophageal reflux disease	REFLUX (2008)	laparoscopic surgery (fundoplication) vs continued medical management	reflux disease symptoms for 12+ months controlled by medication	<ul style="list-style-type: none"> REFLUX questionnaire score NHS costs 	laparoscopic surgery
	REFLUX (2013)	5-year follow-up	5-year follow-up	<ul style="list-style-type: none"> REFLUX questionnaire 	laparoscopic surgery
Abdominal aortic aneurysm (AAA)	EVAR 1 (2012)	endovascular repair vs open repair	fit for open repair, 60+ years old, and AAA measuring 5.5+ cm	<ul style="list-style-type: none"> mortality (operative, aneurysm related and all cause) 	endovascular repair
Knee replacement	KAT (2014)	resurfacing patella vs not resurfacing	experiencing primary knee replacement surgery	<ul style="list-style-type: none"> Oxford Knee Score 	resurface patella
Varicose Veins	REACTIV (2006)	surgical treatment (ligation, stripping, and phlebectomies) vs conservative treatment	having a leg varicose vein larger than 5mm with reflux	<ul style="list-style-type: none"> clinical effectiveness measured with short-form 6D 	traditional surgery
	CLaSS (2015)	endovenous laser ablation vs surgery vs sclerotherapy	having a leg varicose vein, CEAP grade 2 or above	<ul style="list-style-type: none"> Aberdeen Varicose Vein Questionnaire health-related quality of life at 6 months cost-effectiveness 	endovenous laser ablation

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Supplemental Materials 2. Data extraction quantitative codes

Trial	Diagnosis codes	Procedure/Operation codes	Time period	Indicator	Additional details about our data extraction.
FOOD	<p>Primary diagnosis of: I61.x – Intracerebral haemorrhage I63.x – Cerebral Infarction I64.x – Stroke, not specified as haemorrhage or infarction</p> <p>(exclude anyone who didn't stay overnight unless they died)</p>	<p>G44.5 - fiberoptic endoscopic percutaneous insertion of gastrostomy OR (G34.2 – creation of temporary gastrostomy AND G44.8 - other therapeutic fiberoptic endoscopic operations on upper gastrointestinal tract)</p>	Q2 2001-Q1 2020	<p>Proportion Denominator First admission for a patient with first recorded ICD-10 diagnosis code matching those in previous column, and who stayed at least one night in hospital</p> <p>Numerator: Admissions meeting the denominator criteria and the procedure codes outlined in previous column.</p>	For the FOOD trial, data could only be extracted for the number of percutaneous endoscopic gastrostomy tube insertions because nasogastric tube insertions were not recorded
REFLUX	K21 - Gastro-oesophageal reflux disease	G24.3 – Anti-reflux fundoplication using abdominal approach	Q2 2001-Q1 2020	<p>Count All admissions with ICD-10 diagnosis code and a procedure code detailed in prior columns</p>	For the REFLUX trial, only surgical treatments could be captured and not conservative medical management;
EVAR	<p>I71.4 - Abdominal aortic aneurysm, without mention of rupture I71.9 - Aortic aneurysm of unspecified site, without mention of rupture</p> <p>(Restricted to elective admissions)</p>	<p>(Excluded procedure codes labelled emergency) <u>Open heart surgery</u> L19.x - Other replacement of aneurysmal segment of aorta L21.x - Other bypass of segment of aorta L22.x - Attention to prosthesis of aorta L49.x - Other replacement of aneurysmal iliac artery</p>	Q2 2001-Q1 2020	<p>Proportion Denominator All first elective admission for an abdominal aortic aneurysm with a repair</p> <p>Numerator: Admissions meeting the denominator criteria and where there was an endovascular repair</p>	Restricted to elective admissions based on admimeth and restricted to first admission per patient

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		<p>L51.x - Other bypass of iliac artery</p> <p>L52.x - Reconstruction of iliac artery</p> <p>L23.1 - Plastic repair of aorta and end to end anastomosis of aorta</p> <p>L23.2 - Plastic repair of aorta using subclavian flap</p> <p>L23.3 - Plastic repair of aorta using patch graft</p> <p>L23.8 - Other specified plastic repair of aorta</p> <p>L23.9 - Unspecified plastic repair of aorta</p> <p>L25.x - Other open operations on aorta (except L25.3 Open embolectomy of bifurcation of aorta)</p> <p>L53.x - Other open operations on iliac artery (except L53.2 - Open embolectomy of iliac artery)</p> <p>L65.1 - Revision of reconstruction involving aorta</p> <p>L65.2 - Revision of reconstruction involving iliac artery</p> <p><u>Endovascular repair</u></p> <p>L27.x - Transluminal insertion of stent graft for aneurysmal segment of aorta</p> <p>L28.x - Transluminal operations on aneurysmal segment of aorta</p> <p>L26.6 - Transluminal aortic stent graft with fenestration NEC</p> <p>L26.7 - Transluminal aortic branched stent graft NEC</p>			
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		Any of codes listed in open with the additional code of Y02.2 (Insertion of prosthesis into organ NOC)			
KAT		<p><u>Denominator</u></p> <p>W40.1 - Primary total prosthetic replacement of knee joint using cement</p> <p>W40.2 - Conversion to total prosthetic replacement of knee joint using cement</p> <p>W41.1 - Primary total prosthetic replacement of knee joint not using cement</p> <p>W41.2 - Conversion to total prosthetic replacement of knee joint not using cement</p> <p>W42.1 - Primary total prosthetic replacement of knee joint NEC</p> <p>W42.2 - Conversion to total prosthetic replacement of knee joint NEC</p> <p>O18.1 - Primary hybrid prosthetic replacement of knee joint using cement</p> <p>O18.2 - Conversion to hybrid prosthetic replacement of knee joint using cement</p> <p><u>Numerator</u></p> <p>Any of the above codes AND</p> <p>W58.1 - Primary resurfacing arthroplasty of joint (If more than one primary procedure coded (per side) take first)</p>	Q2 2001-Q1 2020	<p>Proportion</p> <p>Denominator: Number of total knee replacements, restricted to the first per knee per person</p> <p>Numerator: Admissions meeting the denominator criteria and who also have a code relating to the resurfacing of the patella also recorded</p>	For the KAT trial data were presented as the percentages of total knee replacements performed with resurfacing the patella, restricted to the first procedure per knee.

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REACTIV & CLaSS	Not used as diagnoses not routinely recorded in outpatient setting.	<p><u>Surgery</u> L84 – combined operation on vein of leg L85 – ligation of vein of leg L87 – other operations of vein of leg <u>EVLA</u> L88.1 - Percutaneous transluminal laser ablation of long saphenous vein L88.3 - Percutaneous transluminal laser ablation of varicose vein of leg NEC <u>RFA</u> L88.2 - radiofrequency ablation of varicose vein of leg <u>Foam Sclerotherapy</u> L86.2 - Ultrasound guided foam sclerotherapy for varicose vein of leg</p>	Q2 2006-Q12020 Non-surgical treatments of varicose veins are undertaken in outpatient setting – the earliest data available is 2006	<p>REACTIV Count First admission with diagnosis code of I83 (varicose veins) and the patients underwent a surgery ; excluding previous admissions with a diagnosis of varicose veins with ulceration (I83.0, I83.2)</p> <p>CLaSS Proportion. Denominator: All outpatient appointments or inpatient admissions where the patient underwent a treatment for varicose veins, with one of the OPCS codes listed. Restricted to the first treatment per patient Numerator: Number of attendances with the respective OPCS4 code.</p>	<p>For the trials about varicose veins, CLaSS and REACTIV, we plotted the proportions of three treatments investigated in the CLaSS trial (traditional surgery, endovenous laser ablation, and foam sclerotherapy), along with a fourth called radiofrequency ablation as per the coding advice received. For REACTIV this was the first surgery performed, regardless of whether a patient had any prior non-surgical treatment.</p> <p><u>For CLaSS if multiple types of procedure were recorded at the same time, we attributed them using the following order: Foam Sclerotherapy, EVLA, RFA, Surgery</u></p>

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Supplemental Materials 3. Interview Guide**OPENING QUESTIONS**

Researcher: Wonderful, now to help characterise you in my report, could you describe your job title and how many years you have worked in this area?

Participant: [says job title and years in practice]

Researcher: Thank you, my records indicate that you can talk to us about one of the main recommendations made in the [HTA trial(s)], specifically that [describe recommendation]. Yes or No: Do you think that this recommendation has been taken up in NHS practice?

Participant: [yes/no]

Researcher: To assess whether this recommendation has been taken up in NHS practice, our research team has used the Hospital Episode Statistics database to trace the number of times the recommended procedure was used from 2003 through 2020. Generally, our results seem to indicate that [indicate what the HES finding seem to be saying, and show graph created].

MAIN QUESTION – ABOUT POTENTIALLY INFLUENTIAL FACTORS

Researcher: Now the main purpose of this interview is to gather your insights as to why this recommendation [has or has not] been taken up. For example, there might be something about the intervention that influenced whether it was taken up, or maybe there is something about the individuals or macro-organizations they work in. And now is when the interview should become much more flexible and guided by you. I will try to ask follow-up questions as you explain why you believe the intervention [has or has not] been taken up.

Participant: [given time to describe factors]

Researcher Probe questions to ensure all CFIR Domains are addressed, these should be used flexibly acknowledging that many of the domains may be naturally addressed by participants without prompts:

- Process: Please, describe any initiatives created to disseminate this recommendation. Who were they lead by, were there any local champions, was there any outside monitoring or feedback?
- Intervention Characteristics: Tell me about any factors related to the intervention or the study that influenced implementation. For example, maybe another treatment was developed as or after the study was conducted that was more effective than the study's recommended treatment?
- Characteristics of Individuals: Do you think that the surgeons themselves had an influence? For example, are surgeons aware of the recommendation? Do they agree with the recommendation? Why/why not?
- Inner setting: Please describe factors within the NHS's working structures that may have influenced use of this intervention? For example, in your opinion does the NHS support changes in practice like this? Who would lead this change or make it a priority for surgeons, and did they do so for this study? Why/Why not?
- Outer setting: Do you think that factors outside the NHS's working structure may have influenced whether this intervention was implemented? For example, can you describe how patients' preferences influenced its use, or any external policies or incentives that influenced its use?

CLOSING

Researcher: It has been great to speak with you today. Do you have any other questions, comments or concerns you would like to express before we end this interview?

Participant: [either offers questions to which the researcher responds or does not have any questions]

Supplemental Materials 4. Qualitative Analyses

Temporal: Events confirmed in time from participant interviews or documents reviewed.

To confirm events, the lead researcher KAS reviewed documents participants recommended and conducted internet searches. Only confirmed events are reported.

FOOD**Jan 1996 – Previous paper published**

- Norton B, Homer-Ward M, Donnelly MT, Long RG, Holmes GK. A randomised prospective comparison of percutaneous endoscopic gastrostomy and nasogastric tube feeding after acute dysphagic stroke. *BMJ*. 1996 312(7022):13-6. doi: 10.1136/bmj.312.7022.13
- “[The FOOD Trial came] following the result of the Norton, et al. paper in the *BMJ*, I think it was, which randomized 32 patients and found a 70% reduction in death related to use of PEG. So, that had caused in the years before we did the FOOD trial an upsurge, we felt, in enthusiasm for PEG, which really wasn’t justified by the evidence, because the trial was not done well and didn’t report important function outcomes. So, that particular FOOD trial, FOOD three, was dominant in an era where there was an enthusiasm for PEG caused for a very small and not very robust studies and quite a lot of observational work.” (-F1.Author)

March 2005 – FOOD trial first published in The Lancet

- Dennis MS, Lewis SC, Warlow C, FOOD Trial Collaboration. Routine oral nutritional supplementation for stroke patients in hospital (FOOD): a multicentre randomised controlled trial. *The Lancet*. 2005. 365(9461):755-63. doi: 10.1016/S0140-6736(05)17982-3

National Stoke Guidelines have been produced.

- 2004 – Does **not** recommend NG tubes: “Too few studies have been performed, and these have involved too few patients. PEG feeding may improve outcome and nutrition as compared with NGT feeding”
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewjFjbqR1N3zAhUUgFwKHea1D-gQFnoECAMQAO&url=https%3A%2F%2Flearning.medistra.ac.id%2Fpluginfile.php%2F592%2Fmod_folder%2Fcontent%2F0%2FStroke%2520Guidelines%2520ed.pdf%3Fforcedownload%3D1&usg=AOvVaw1bdEwLgQzqBvajFEz5sj2o
- 2008 July – Recommends NG tube considered before PEG <http://www.wales.nhs.uk/documents/RCP%20Guidelines%203rd%20Edition%2Epdf>
- 2012 September – Recommends NG tube considered before PEG <https://www.strokeaudit.org/Guideline/Historical-Guideline/National-Clinical-Guidelines-for-Stroke-fourth-edi.aspx>
- 2016 July – recommends NG tube considered before PEG [https://www.strokeaudit.org/SupportFiles/Documents/Guidelines/2016-National-Clinical-Guideline-for-Stroke-5t-\(1\).aspx](https://www.strokeaudit.org/SupportFiles/Documents/Guidelines/2016-National-Clinical-Guideline-for-Stroke-5t-(1).aspx)

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<ul style="list-style-type: none"> • <i>“It might have been NICE or it might have been the Intercollegiate Guidelines Network... I think the guidelines have generally gone along with the FOOD trial results, which suggest that , yep, start tube feeding early, persist as long as you can, and switch to a PEG if you need to but not in the early period.”</i> (-F1.Author)
<p>February 2006 - NICE guidelines for “Nutrition support in adults Oral nutrition support, enteral tube feeding and parenteral nutrition”</p> <ul style="list-style-type: none"> • Recommends NG for short term use https://www.nice.org.uk/guidance/cg32/evidence/full-guideline-194889853. Current NICE 2017 guidelines continue to support https://www.nice.org.uk/guidance/cg32 • <i>“We’re much more content now than we wouldn’t been than to talk about palliative care for someone with stroke, with severe disability. And, also a phenomenon that’s only recently, sort of actually formulated into any kind of professional description, and that’s the notion of feeding at risk.”</i> (-F2.Surgeon) •
<p>August 2007 – Study supporting use of bridles published</p> <ul style="list-style-type: none"> • Beavan JR, Conroy S, Leonardi-Bee J, Bowling T, Gaynor C, Gladman J, Good D, Gorman P, Harwood R, Riley J, Sach T, Sunman W. Is looped nasogastric tube feeding more effective than conventional nasogastric tube feeding for dysphagia in acute stroke? <i>Trials</i>. 2007. 8:19. https://doi.org/10.1186/1745-6215-8-19 • <i>“The other thing that probably has influenced practice as well is a relatively small – well, the introduction of restraint to keep NG tubes in. First with things like mittens, which haven’t been properly evaluated, but then there was a small trial performed in Nottingham/Derby, from memory, which looked at the effectiveness of putting a nasal loop, and that increased/improved the duration and the effectiveness of NG feeding.”</i> (-F1.Author) • <i>“There’s a lot of nursing literature, which was very much pushing against any form of restraint, seen as unethical. And I think, hopefully, we now have a more balanced view. That you’ve got to take a holistic view of what you’re trying to achieve. And it isn’t always unethical to restrain in some way to achieve better adherence to a given intervention.”</i> (-F1.Author) • <i>“One of the cultural changes in practice that must’ve occurred probably about 10 years ago is the increase in the use of nasal bridles and mittens for patients as well. And both of those, I think, have increased the survivability of nasogastric tubes when being used for feeding.”</i> (-F2.Surgeon)
<p>2007 – Growing recognition of stroke as a subspecialty.</p> <ul style="list-style-type: none"> • Stroke Medicine only recognized as a subspecialty in 2007 https://www.healthcareers.nhs.uk/explore-roles/doctors/roles-doctors/medicine/stroke-medicine • [researcher asks why it took so long for a change in practice to start] <i>“At that point [when the trial was published], stroke, per se, was certainly not in this trust seen as a real speciality, it was not as high profile as maybe it is now. So certainly, here, stroke patients were cared for more for within acute medicine or within elderly care rather than as a stroke speciality. And it was only sort of after this time that stroke was a speciality, certainly in this area became more recognized.”</i> (-F3.Other-stroke dietician) •
<p>February 2009 – ACT FAST stroke campaign launched by Public Health England</p>

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<ul style="list-style-type: none">Flynn D, Ford GA, Rodgers H, Price C, Steen N, Thomson RG. A time series evaluation of the FAST National Stroke Awareness Campaign in England. <i>PLoS One</i>. 2014. 9(8):e104289. doi: 10.1371/journal.pone.0104289.
June 2010 – Stroke in adults Quality standard [QS2] <ul style="list-style-type: none">Prompt admission to specialist acute stroke units https://www.nice.org.uk/guidance/qs2/chapter/Quality-statement-1-Prompt-admission-to-specialist-acute-stroke-units
July 2010 – General Medical Council's Treatment and care towards the end of life: good practice in decision making <ul style="list-style-type: none">https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/treatment-and-care-towards-the-end-of-life“Culturally, there’s been a big change in attitudes toward managing nutrition and hydration. So, since the GMC brought out their guidelines about meeting nutritional needs and avoiding prolonging intolerable life (is that the phrase that they use), the dieticians and myself at least we use that quite a lot to try to get doctors really think about the appropriacy of non-oral feeding.” (F4.Other-Speech and Language Therapist)
January 2013 – Stroke Sentinel National Audit started <ul style="list-style-type: none">https://www.strokeaudit.org/About-SSNAP/SSNAP-Clinical-Audit/Data-Collection.aspx“The RCP Stroke Guidelines are what we follow... There’s other things where we meet the stroke sentinel National audit Programme, so we try to fit in with that as well.” (-F4.Other-Speech and Language Therapist)
October 2014 – Five Year Forward View <ul style="list-style-type: none">Recommended promoting “specialised” services using the example of stroke care https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

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REFLUX

Date factor occurred confirmed by independent search
<p>May 2011 – LOTUS trial published with similar conclusions</p> <ul style="list-style-type: none"> Galmiche JP, Hatlebakk J, Attwood S, Ell C, Fiocca R, Eklund S, Långström G, Lind T, Lundell L, LOTUS Trial Collaborators. Laparoscopic antireflux surgery vs esomeprazole treatment for chronic GERD: the LOTUS randomized clinical trial. <i>JAMA</i>. 2011. 18;305(19):1969-77. doi: 10.1001/jama.2011.626 “<i>Certainly, as surgeons we’re aware of the results [of the REFLUX trial], this alongside the LOTUS study which happened as similar sort of time...the findings were similar in terms of long-term management of reflux surgeries.</i>” (-Ref1.Surgeon)
<p>September 2012 – LINX® Reflux management system approved by NICE</p> <ul style="list-style-type: none"> https://www.nice.org.uk/guidance/ipg431 “<i>I can’t remember when the anti-reflux stuff came out about stuff like LINX®, it was a couple of years ago now.</i>” (-Ref2.Other-gastroentologist)
<p>April 2013 – REFLUX 5-year follow-up published in BMJ</p> <ul style="list-style-type: none"> Grant A M, Cotton S C, Boachie C, Ramsay C R, Krukowski Z H, Heading R C et al. Minimal access surgery compared with medical management for gastro-oesophageal reflux disease: five year follow-up of a randomised controlled trial (REFLUX). <i>BMJ</i>. 2013. 346:f1908. doi:10.1136/bmj.f1908
<p>2014 – NICE recommendations updated</p> <ul style="list-style-type: none"> https://www.nice.org.uk/guidance/CG184/chapter/1-Recommendations#laparoscopic-fundoplication “1.10 Laparoscopic fundoplication 1.10.1 Consider laparoscopic fundoplication for people who have: <ul style="list-style-type: none"> a confirmed diagnosis of acid reflux and adequate symptom control with acid suppression therapy, but who do not wish to continue with this therapy long term a confirmed diagnosis of acid reflux and symptoms that are responding to a PPI, but who cannot tolerate acid suppression therapy. [new 2014]

EVAR**EVAR trial result findings - only some publications are here, meant to capture the key publications and the controversy rising after the initial trials finding.****September 2004 – EVAR 30-day mortality results published – Favour EVAR**

- Greenhalgh RM, Brown LC, Kwong GPS, Powell JT, Thompson SG. Comparison of endovascular aneurysm repair with open repair in patients with abdominal aortic aneurysm (EVAR trial 1), 30-day operative mortality results: randomised controlled trial. *The Lancet*, 2004. 364(9437): 843-8. doi: 10.1016/S0140-6736(05)66627-5
“In patients with large AAAs, treatment by EVAR reduced the 30-day operative mortality by two-thirds compared with open repair. Any change in clinical practice should await durability and longer-term results.” (Quote from paper)

June 2005 – EVAR1 four year follow up published – No advantage of EVAR over open surgery.

- EVAR trial participants. Endovascular aneurysm repair versus open repair in patients with abdominal aortic aneurysm (EVAR trial 1): randomised controlled trial. *The Lancet*. 2005. 365(9478):2179-86. doi: 10.1016/S0140-6736(05)66627-5
“...with respect to all-cause mortality and HRQL, is more expensive, and leads to a greater number of complications and reinterventions.”
Quote from paper)

June 2005 – EVAR2 four year follow up published – No advantage of EVAR over no surgery

- EVAR trial participants. Endovascular aneurysm repair and outcome in patients unfit for open repair of abdominal aortic aneurysm (EVAR trial 2): randomised controlled trial. *The Lancet*. 2005. 365(9478):2187-92. doi: 10.1016/S0140-6736(05)66628-7

August 2007 – Evidence pointing to AAA not being the major cause of death for trial participants

- Greenhalgh RM, Brown LC, Powell JT. High risk and unfit for open repair are not the same. *Eur J Vasc Endovasc Surg*. 2007. 34(2):154-5.

June 2008 – EVAR authors discuss common misconceptions in the interpretation of their trial findings

- Greenhalgh RM, Brown LC. The most important misinterpretations of the UK randomised trials on abdominal aortic aneurysm repair, *Scandinavian Journal of Surgery*. 2008. 97:116-20.

10-year follow up no difference between EVAR and Open

- **April 2010 – 10-year follow-up** - United Kingdom EVAR Trial Investigators, Greenhalgh RM, Brown LC, Powell JT, Thompson SG, Epstein D, Sculpher MJ. Endovascular versus open repair of abdominal aortic aneurysm. *N Engl J Med*. 2010. 362(20):1863-71. doi: 10.1056/NEJMoa0909305
- **March 2012 - publication in HTA** - Brown L, Powell J, Thompson S, Epstein D, Sculpher M. The UK EndoVascular Aneurysm Repair (EVAR) trials: randomised trials of EVAR versus standard therapy. *Health Technology Assess*. 2012;16(9):1-128. doi: 10.3310/hta16090

15-year follow up, favours Open surgery

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<ul style="list-style-type: none"> • October - 2016 – The Lancet publication of 15-year follow-up - Patel R, Sweeting MJ, Powell JT, Greenhalgh RM for the EVAR trial investigators. Endovascular versus open repair of abdominal aortic aneurysm in 15-years' follow-up of the UK endovascular aneurysm repair trial 1 (EVAR trial 1): a randomised controlled trial. <i>The Lancet</i>. 2016. 388: 2366-74. doi: 10.1016/S0140-6736(16)31135-7 • January - 2018 publication in HTA - Patel R, Powell JT, Sweeting MJ, Epstein DM, Barrett JK & Greenhalgh RM. The UK EndoVascular Aneurysm Repair (EVAR) randomised controlled trials: long-term follow-up and cost-effectiveness analysis. <i>Health Technology Assessment</i>. 2018;22(5): 1-132. doi: 10.3310/hta22050
<p>OVER trial findings – similar to EVAR trial in methodology but conducted in the USA Veterans Administration</p> <ul style="list-style-type: none"> • “An American EVAR trial kind of stated and finished a bit later and did not show the same trend, so there aren’t many people who are completely convinced.” (-E2.Surgeon) <p>October 2009 –OVER trials 2 year follow up favours EVAR</p> <ul style="list-style-type: none"> • Lederle FA, Freischlag JA, Kyriakides TC, et al. Outcomes Following Endovascular vs Open Repair of Abdominal Aortic Aneurysm: A Randomized Trial. <i>JAMA</i>. 2009. 302(14):1535-1542. doi:10.1001/jama.2009.1426 <p>November 2012 – OVER trial 9 year follow up no difference between EVAR and Open surgery – EVAR has higher reintervention rates</p> <ul style="list-style-type: none"> • “Endovascular repair led to increased long-term survival among younger patients but not among older patients, for whom a greater benefit from the endovascular approach had been expected.” • Lederle FA, Freischlag JA, Kyriakides TC, Matsumura JS, Padberg FT Jr, Kohler TR, Koungias P, Jean-Claude JM, Cikrit DF, Swanson KM; OVER Veterans Affairs Cooperative Study Group. Long-term comparison of endovascular and open repair of abdominal aortic aneurysm. <i>N Engl J Med</i>. 2012. 367(21):1988-97. doi: 10.1056/NEJMoa1207481 <p>May 2019 – OVER trial 14 year follow up no difference between EVAR and Open surgery – EVAR has higher reintervention rates</p> <ul style="list-style-type: none"> • Lederle, et al. (2019). Open versus Endovascular Repair of Abdominal Aortic Aneurysm. <i>N Engl J Med</i>. 2019. 380: 2126-2135 doi: 10.1056/NEJMoa1715955.
<p>July 2008 - Vascunet report</p> <ul style="list-style-type: none"> • https://www.vascularsociety.org.uk/userfiles/pages/files/Document%20Library/ESVS_VASCUNET_REPORT_2008_BW.pdf • “At the very early years of your graph there were Europe wide audits that showed UK to be the worst performer in terms of 30-day mortality after elective aneurysm repair.” (-E2.Surgeon)
<p>July 2009 – National AAA screening program phased roll out starting in July 2009 and full roll out by April 2013</p>

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- Davis M, Harris M, Earnshaw JJ. Implementation of the National Health Service Abdominal Aortic Aneurysm Screening Program in England. *Journal of Vascular Surgery*. 2013. 57(5): 1440-5. doi: 10.1016/j.jvs.2012.10.114
- “*The screening programme is starting to, you know, because it screens patients at 65, now we’re not talking about the age group you’re mentioning [from about 74 in the EVAR trials]... I’ve definitely seen a change in practice for these younger patients, and there’s a greater preparedness to proceed with open surgery for young patients if they consent.*” (-E3.Other.radiologist)

June 2013 – Publishing Individual-level surgeon 30-day mortality rates commences

- NHS News: Major breakthrough in NHS transparency as consultant mortality data goes online for first time <https://www.england.nhs.uk/2013/06/mjr-brkthgh-nhs-transp-cons/>
- “*Very importantly, UK has also adopted individual surgeon levelled result reporting*” (-E2.Surgeon)
- “*I know from operating surgeons, they don’t like, and it’s nice that they don’t like it, but they don’t like people to die on them. And so , if 5% of your patients or 3% are going to die from an open repair in hospital while they’re under your care, even though there’s a long-term price to pay, I think there’s a psychological bias towards the procedure which might store up fairly in the future but doesn’t happen on my short-term watch.*” (-E3.Other-radiologist)
- “*I mean, just from a purely human point of view, people don’t want patients whom they know, and the families then they don’t, you know, understand. And they don’t want [the patient] to die under their care. And I think that influences behaviour because you know the vast, vast, vast majority of patients will come in off the EVAR and go along, and their long-term complications 10 or 15 years might well be under another hospital, another country, another physician, and so it’s kind of hidden, the penalties are hidden.*” (-E3.Other.radiologist)

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KAT

<p>April 2003 – National Joint Registry started to collect data</p> <ul style="list-style-type: none"> • https://www.hqip.org.uk/national-programmes/joint-replacement-surgery-the-national-joint-registry/#.YX0LsC1Q3yU • “We’ve always been rather cautious about using HES data. And I would say the best source of data, really, would be the National Joint Registry because they record the details of every implant.” (-K1.Author) • “I think the only way you’re going to find out if patella resurfacing is done or not and fitting it into timescale as, I would probably not use HES data, I would use NJR data.” (-K2.Other-coding expert)
<p>April 2004 – Cochrane protocol for review of “Patella resurfacing in total knee arthroplasty” – not converted into review</p> <ul style="list-style-type: none"> • Khan RJK, Khoo P, Fick DP, Gupta RR, Jacobs W, Wood DJ. Patella resurfacing in total knee arthroplasty. <i>Cochrane Database of Systematic Reviews</i>. 2004. 2:CD004799. DOI: 10.1002/14651858.CD004799.
<p>January 2009 – 1st paper published. KAT Trial Group,</p> <ul style="list-style-type: none"> • Johnston L, MacLennan G, McCormack K, Ramsay C, Walker A. The Knee Arthroplasty Trial (KAT) design features, baseline characteristics, and two-year functional outcomes after alternative approaches to knee replacement. <i>J Bone Joint Surg Am</i>. 2009. 91(1): 134-41. doi: 10.2106/JBJS.G.01074 • “The first paper would have been published at about five years, from what I remember, and presumably the HTA report published at 10 years.” (-K1.Author)
<p>April 2009 – Patient Reported Outcome Measures (PROMs) commence.</p> <ul style="list-style-type: none"> • https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/patient-reported-outcome-measures-proms • “I think most of the evidence would also suggest that there is no significant impact, particularly at the level of clinical importance, from patients, in terms of Patient Reported Outcome Measures and satisfaction rates.” (-K3.Surgeon)
<p>April 2011 – National Joint Registry mandatory reporting for knee surgery commences.</p> <ul style="list-style-type: none"> • https://www.hqip.org.uk/national-programmes/joint-replacement-surgery-the-national-joint-registry/#.YX0LsC1Q3yU • “[compared to the HES database...] There’s still some issues with the National Joint Registry data, though initially when it started in 2003 recording data onto the NJR was not mandatory, and rates of compliance were quite poor in the first few years of the registry. . Mandatory reporting only came online for the NJR I think about ten years ago.” (-K3.Surgeon)

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<p>September 2012 – First Getting it Right the First-Time report</p> <ul style="list-style-type: none"> Briggs T. <i>Getting it Right First Time: improving the quality of orthopaedic care within the National Health Service in England</i>. London: British Orthopaedic Association; 2012.
<p>December 2012 – NHS England (then NHS Commissioning Board) announced that through the 'Everyone Counts' initiative</p> <ul style="list-style-type: none"> the activity and outcomes of surgery at individual consultant-level would be published by 30 June 2013 for ten clinical areas. https://www.njrcentre.org.uk/njrcentre/News-and-Events/Outcomes-publication-for-joint-replacement
<p>April 2013 – Payment uplift</p> <ul style="list-style-type: none"> increased payment if the knee was resurfaced by £2642. http://www.fundingrequests.cscsu.nhs.uk/wp-content/uploads/2016/11/015-patella-resurfacing-v0.1.pdf <i>“I think the HES coding bit of it is plain straight down to how the codes were applied. And for this particular one there was a change in the logic, and I’ve emailed you the dates because I can’t remember them straight off hand, where several things happened. So, you switch to creating HRGs [Healthcare Resource Groups] out of the HES codes, which were based on the basis for the payment by results. In amongst that then came the payment system that they bolted on to that. At some point I think I’ve sent you the dates, they switched the logic which meant that if you coded the patella resurfacing at the time of a knee replacement you got paid an uplift of a couple thousand pounds.”</i> (-K2.Other.coding expert)
<p>No Month 2014 – The Orthopaedic Data Evaluation Panel starts including knees in their database</p> <ul style="list-style-type: none"> https://www.matortho.com/orthopaedic-data-evaluation-panel-odep-2/ <i>“ODEP is an independent group that I’m actually part of the sort of part that independently reviews combinations of implants..”</i> (-K4.Surgeon)
<p>March 2015 – Second First Getting it Right the First-Time report</p> <ul style="list-style-type: none"> Briggs T. <i>Getting it Right First Time: a national review of adult elective orthopaedic services in England</i>. London: British Orthopaedic Association. 2015. <i>“So there has been work with, you know, GIRFT as well. I guess I haven’t mentioned the GIRFT because they’ve sort of been championing doing the patella. But again, mainly in a defensive way in that it reduces the risk of further operations, etc cetera. GIRFT have also championed other things such as trying to get the cost of implants down and lots of useful things that have tried to standardize care a bit more.”</i> (-K4.Surgeon)
<p>April 2017</p> <ul style="list-style-type: none"> The second change, which occurred 2017/2018 which got rid of the extra payment for resurfacing.

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January 2018 – Systematic review of meta-analyses showing no functional improvements for patella resurfacing

- Grassi, A., Compagnoni, R., Ferrua, P. *et al.* Patellar resurfacing versus patellar retention in primary total knee arthroplasty: a systematic review of overlapping meta-analyses. *Knee Surg Sports Traumatol Arthrosc.* 2018. 26: 3206-18. doi: 10.1007/s00167-018-4831-8
- *“There’s lots of meta-analyses and individual RCTs in this area, and essentially, when you boil it down, and most of them will show that there is a secondary reoperation rate that is higher in patients that don’t have the patella resurfaced.... So essentially what you’re doing is, you’re balancing this secondary reoperation rate, which is where some of the recommendations from KAT come in because of the cost associated with secondary operations.”* (K3.Surgeon)

April 2019 – Cochrane protocol for review of “Patella resurfacing in total knee arthroplasty” – has been withdrawn

- Khan RJK, Khoo P, Fick DP, Gupta RR, Jacobs WCH, Wood DJ. Patella resurfacing in total knee arthroplasty. *Cochrane Database of Systematic Reviews* 2019. 4: CD004799. doi: 10.1002/14651858.CD004799.pub2

June 2020 – NICE Guidelines recommend resurfacing

- Patella resurfacing 1.7.2 Offer resurfacing of the patella to people having primary elective total knee replacement.
- Guidelines show that few trials find significant functional improvements. <https://www.nice.org.uk/guidance/ng157/evidence/l-patella-resurfacing-pdf-315756469335> “The NICE panel were unable to draw conclusions on whether or not to recommend selective resurfacing” (page 134) and “Given the financial impact of the findings of the KAT trial (equivalent of up to £30M a year savings) the financial impact is likely to be large” (page 135)

No Date – American Academy of Orthopaedic Surgeons supports resurfacing patella

- <https://www.orthoguidelines.org/go/cpg/detail.cfm?id=1309>
- Recommendation from Academy says that: “Practitioners should generally follow a Moderate recommendation but remain alert to new information and be sensitive to patient preferences.” <https://www.orthoguidelines.org/go/cpg/strength.cfm?id=1015>
- *“Probably the most influential organisation is the American Academy of Orthopaedic Surgeons, and they’ve made their own recommendations partially based on our work.”* (-K1.Author)

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REACTIV and CLASS

<p>July 2000 – National waitlist targets introduced.</p> <ul style="list-style-type: none"> • Push for waitlist started with “The Plan” https://webarchive.nationalarchives.gov.uk/ukgwa+/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4002960 • <i>“Many years ago, varicose veins, there used to be two or three-year waiting lists often for varicose veins because it was seen as non-urgent...And then what happened was that they set criteria on waiting list targets, which hospitals had to get their waiting list down. What that caused was a whole load of waiting list incentives...The reality of that was that it brought the waiting lists down, but it put lots of financial pressure on commissioners. And so, the commissioners started demand management and they started creating all these referral hurdles and referral guidelines saying, “You shouldn’t be treating cosmetic varicose veins. You should only be treating them if there are leg ulcers or skin changes” and so on”... So, you’ll find that around the early 2000s, PCTs at that time started producing referral guidelines for varicose veins that said, “don’t refer patients unless they’ve got skin changes or leg ulcers.”” (-R.VV1.Author)</i>
<p>September 2003 – Interventional procedure guidance released for Radio Frequency Ablation</p> <ul style="list-style-type: none"> • NICE. Radiofrequency ablation of varicose veins. https://www.nice.org.uk/guidance/ipg8/chapter/1-Guidance
<p>March 2004 – Interventional procedure guidance released for Endovenous Laser Ablation</p> <ul style="list-style-type: none"> • NICE. Endovenous laser treatment of the long saphenous vein. https://www.nice.org.uk/guidance/ipg52/chapter/1-Guidance
<p>2006 – Payment by Results rolled out to all trusts.</p> <ul style="list-style-type: none"> • “18. PbR [Payment by Results] began in a limited way, with national tariffs for 15 HRGs in 2003 - 04 and 48 HRGs in 2004-05. The first NHS foundation trust (FT) applicants moved to the full PbR system in 2005-06 and other trusts in 2006-07.” (Page 9 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213150/PbR-Simple-Guide-FINAL.pdf)
<p>November 2006 – bid submitted to commissioned call for CLASS trial</p> <ul style="list-style-type: none"> • “The original application for this study was submitted in 2006 in response to a Health Technology Assessment (HTA) programme-commissioned call (06/45) for studies involving foam sclerotherapy” quote from Chapter 1 in HTA report https://doi.org/10.3310/hta19270
<p>March 2007-collection of reliable wait time data commences</p> <ul style="list-style-type: none"> • https://www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times/
<p>May 2007 – Interventional procedure guidance released for sclerotherapy</p> <ul style="list-style-type: none"> • NICE. Ultrasound-guided foam sclerotherapy for varicose veins. https://www.nice.org.uk/guidance/IPG217

<p>March 2009 — McKinsey report released about procedures of low clinical value</p> <ul style="list-style-type: none"> • McKinsey for Department of Health. Achieving World Class Productivity in the NHS 2009/10 – 2013/14: Detailing the Size of the Opportunity. London. March 2009. See www.nhshistory.net/mckinsey_report.pdf • “One of the things that’s hacked vascular surgeons off is that varicose veins had been listed in NHS documents as a low-priority treatment, and that hasn’t helped.” (C.VV2-Author)
<p>April 2009 – Patient Reported Outcome Measures (PROMs) commenced</p> <ul style="list-style-type: none"> • Routine collection of health gains for patients undergoing hip replacement, knee replacement, varicose vein and groin hernia surgery in England, based on responses to questionnaires before and after surgery. https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/patient-reported-outcome-measures-proms • “The issue is that Patient Reported Outcome Measures (PROMs) are not great for varicose veins surgery. Patients always get asked early doors about it, and they remember the bruising and the battering and the fact their legs were swollen and painful and they get phlebitis and things, so they tend not to like it much.” (-R.CVV4.Surgeon)
<p>2010. – Best practice tariff introduced</p> <ul style="list-style-type: none"> • “The introduction of best practice tariffs in 2010-11, and a commitment to expand them in future years, has seen tariffs increasingly determined by best clinical practice rather than average costs” (Page 15 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213150/PbR-Simple-Guide-FINAL.pdf)
<p>August 2011 – Large RCT favouring Radio Frequency Ablation over laser ablation</p> <ul style="list-style-type: none"> • Rasmussen LH, Lawaetz M, Bjoern L, Vennits B, Blemings A, Eklof B. Randomized clinical trial comparing endovenous laser ablation, radiofrequency ablation, foam sclerotherapy and surgical stripping for great saphenous varicose veins. <i>Br J Surg</i>. 2011. 98(8):1079-87. doi: 10.1002/bjs.7555 •
<p>July 2013 – NICE Guidelines published about interventional treatments for varicose veins.</p> <ul style="list-style-type: none"> • Interventional treatment 1.3.2 For people with confirmed varicose veins and truncal reflux: Offer endothermal ablation (see radiofrequency ablation of varicose veins [NICE interventional procedures guidance 8] and endovenous laser treatment of the long saphenous vein [NICE interventional procedures guidance 52]). https://www.nice.org.uk/guidance/cg168/evidence • “The NICE guidance by 2013 had become a hugely influential input into NHS practice, you know, very much more than many individual trials. So, you shouldn’t underestimate the power of the NICE guidelines.” (-C.VV2.Author)
<p>September 2014 – Shorter-term results published for CLASS trial</p> <ul style="list-style-type: none"> • Brittenden, et al. A Randomized Trial Comparing Treatments for Varicose Veins <i>N Engl J Med</i>. 2014. 371:1218-27 doi: 10.1056/NEJMoa1400781

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October 2017 – Patient Reported Outcome Measures (PROMs) ceased for veins and hernia

- <https://www.england.nhs.uk/ourwork/insight/promsconsultation/>

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CFIR: Factors influencing implementation per trial.

2. Outer Setting

2.A Needs and resources of those served

"The majority of my patients are well educated, professional, middle income, middle aged, but some are elderly, some are young... I remember when I was in my first job... I had a 28-year-old, and that was so unusual and everybody wanted to know about it because they never met somebody that young and it just hit it, it became the lifestyle... And now that's, I wouldn't say a common outcome, but it's definitely more frequent..."

"Bottom line is if the medical conservative therapy, omeprazole, lansoprazole, whatever, it's relatively cheap as chips and I wouldn't say we quite stick to that anymore but it's a nice easy, fix, and 90-90% of the patients is seems to work..."

"The general view would be that it's a good idea, and they are at risk of death... And so you're probably doing it, and so actually it's questionable whether all-cause mortality is actually any more difficult to measure..."

"I think the main thing is that with patella resurfacing, although it is more cost effective, I don't think the numbers are that massively different which is, you know, if you look at it on a global population level..."

"There has been a sort of invasion among many of those running the NHS and people that various and sundry... And so you're probably doing it, and so actually it's questionable whether all-cause mortality is actually any more difficult to measure..."

"Occasionally, we have living wills, advanced decision-making may appear... Sometimes, families have previous experience of PEG tubes, and that can influence decision making..."

"REFLUX is interesting because very, very few patients have surgery for reflux, considering the vast quantities of patients who take anti-reflux medication..."

"The fact that there is no real sustained mortality benefit that three years to be determined to be benefits..."

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2.B. Comorbidity

2.C. Peer Pressure

"I think the guidelines have generally gone down with the FOCO that results, which suggests that you, start tube feeding pretty early, as long as you can, and start to a bit later in the early period..."

"The patients have a follow up of factors that influence the choice to have surgery and some people would rather take the anti-reflux medication every day and not seem about..."

"The fact that there is no real sustained mortality benefit that three years to be determined to be benefits..."

"I think the main thing is that with patella resurfacing, although it is more cost effective, I don't think the numbers are that massively different which is, you know, if you look at it on a global population level..."

"There has been a sort of invasion among many of those running the NHS and people that various and sundry... And so you're probably doing it, and so actually it's questionable whether all-cause mortality is actually any more difficult to measure..."

2.D. External Policies

"It's typical that it takes quite a long time for the results of trials to affect practice... I think the guidelines have generally gone down with the FOCO that results, which suggests that you, start tube feeding pretty early, as long as you can, and start to a bit later in the early period..."

"The FOCO has got to be cost effective and efficient and by and adhere as best it can to NICE guidelines..."

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<p>4.C. Individual Stage of Change Characterization of the phase an individual is in, as he or she progresses toward adopt, enthusiastic, and sustained use of the innovation.</p>															
<p>4.D. Individual Identification with Organization A broad construct related to how individuals perceive the organization, and their relationship and degree of commitment with that organization.</p>	<p>[compared to NICE guidelines] there's more ownership by the clinicians of the RCP guidelines. I guess, it's more clear. You know, they come out at regular intervals - not very regular intervals. 2016 was the last, but they're working on a new set soon. I think, NICE comes out in drags and drabs. (F1 Author)</p>														
<p>4.E. Other Personal Attributes A broad construct to include other personal traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style.</p>															
<p>5. Process These constructs have been interpreted to include facilitators and barriers to implementation.</p>															
<p>5.A. Planning The degree to which a scheme or method of intervention and tasks for implementing an intervention are developed in advance, and the quality of those schemes or methods.</p>															
<p>5.B. Engaging Identifying and involving appropriate individuals in the implementation and use of the intervention through a combined strategy of social marketing, education, role modeling, training, and other similar activities.</p>															
<p>5.B1. Opinion Leaders Individuals in an organization who have normal or superior influence on the attitudes and beliefs of their colleagues with respect to implementing the intervention.</p>															<p>"What happened about 2009, 2010, people were very short of money. And throughout a lot of the commissioners suddenly started restricting varicose vein treatments. For example, the patients who actually developed an ulcer or actually had a bleed from their varicose veins. And bleeding is rare. And I mean, this was horrific because, obviously, what you want is if someone started to develop skin you don't want them to get worse and worse and get an ulcer. And so, for example in my own area, I was involved in a group where the commissioners said, "Look, we want to reduce varicose vein treatments, and we want to not have anyone unless they bleed or had an ulcer." We, the surgeons, a public opinion leader in the GP and "This is crazy, you have to treat somebody who has an ulcer that's damaged because they're immediately showing the sign that they could get much worse and could receive a lot of money." And so, we, in the hospital, produce guidelines which will state, "Refer to VC."</p> <p>"I would influence NICE and suggested they produce a guideline, which they did in 2013, suggesting actually, the recommendation was that anyone with troublesome symptoms should be referred, and obviously with skin damage and bleeding and things certainly should be referred urgently. And so, most, to me, the most powerful influence for the NHS about what they ought to be doing. And that guideline was produced in 2013 largely in response to what had happened in terms of the increasing in treatment during the prior three or four years." (RandCVS Author)</p>
<p>5.B2. Appointed Internal Implementation Leaders Individuals from within the organization who have been formally appointed with responsibility for implementing an intervention as coordinator, project manager, team leader, or other similar jobs.</p>															
<p>5.B3. Champions "Individuals who dedicate themselves to supporting, marketing and 'driving through' an implementation" (10) (p. 162), overcoming resistance or resistance that the intervention may provoke in an organization.</p>	<p>[researcher] Were there any champions that specifically led you in your organization that we need to switch, and you need to use the radiographic tubes sooner, faster, than we insert the PEGs. [participant] No, because as I said, I think I can't remember a time in this trust where we just put a PEG in without discussion very early. [researcher] Where in contrast, you can remember antibiotic champions and hand washing champions, in a sense. [participant] Yeah. And yeah, oral hygiene champions and all sorts of things. (F4 Speech and Language Therapy)</p>														
<p>5.B4. External Change Agents Individuals who are affiliated with an outside entity who formally influence or facilitate intervention decisions in a desirable direction, including the influence of manufacturers here.</p>															<p>"I suppose, [VAR] is associated with the device, devices associated with manufacturers, and manufacturers sponsored some things, and in my experience, it's gone over the years, when a procedure which is cheap doesn't have a large champion that the expensive treatment always seems to win out, and I find that very sad." (E1 Radiologist)</p> <p>"I think there's a huge cost, there's a huge profit motive here for EVAR. They [manufacturers] make a lot of money out of the patient and think that in endovascular endovascular profits and so forth. And I think that they have invested a huge amount of money in sponsoring meetings, sponsoring speakers, advertising, and I think that has influenced the adoption of endovascular techniques for treating aneurysms. It's a subtle process, but if you support the advocates of endovascular treatment, and you don't support the advocates of open treatment, then inevitably the advocates of endovascular treatment will be the ones standing at the speaker's making the message, it might be a message that he believes in. So, I'm not suggesting they're bought, but I'm just suggesting that they're sponsored to promote that message. And I think that has a big impact in terms of, of the response, for example, to the nice recommendations are on either, which were considerably watered down after a fairly sort of resolute response from the pro-endovascular lobby. So I think the industry has had a big impact in that respect. And I have concerns that it is in some organizations starting, the aneurysm repair, more towards endovascular than is justified, but I think it's a difficult process. We need industry, but at the same time, we need to be careful about the industry." (RandCVS Surgeon)</p> <p>"I think that that transition from open surgery to endovascular treatment has been enormous, and I'm comfortable with it. I don't think it's been driven excessively by industry, I think it's been driven by clinicians. And I think that, although industry, I'm sure has had a role on it, I think, as a whole, it's been a good development. And I think that it's the way forward in terms of the treatment of endovascular surgery." (RandCVS Surgeon)</p>
<p>5.B5. Key Stakeholders Individuals from within the organization that are directly impacted by the innovation, e.g., staff responsible for making referrals to a new program or using a new tool, device.</p>															

				<p>And at the end of the day standard embolus repair is actually a relatively simple procedure. It's not even known if it's really a part of the consent process for myself or any of my colleagues actually or anybody (K4 Surgeon)</p> <p>"So knee replacement surgery is generally a very successful operation. But you're right, there is this element of consent that we don't discuss with these surgeons, which is quite a bit different for whether or not you have, you know, whatever impact you have, whatever way it is, you know, whatever does it, it's not a big concern for me (K4 Surgeon)</p> <p>"I think most of the evidence would also suggest that there is no significant impact, particularly at the level of clinical importance, from patients, in terms of patient reported outcome measures and satisfaction (K4 Surgeon)</p> <p>"Patients are very, very different and some patients really don't need much rehab at all. And some people need horrendous amounts of rehab to get places and to get the same. And some people actually have to pass and some people have, you know, the words just over and it's just it's a really difficult subjects and then patient satisfaction doesn't necessarily always equal with post op pain" (K4 Surgeon)</p> <p>"The difference between resurfacing and not is relatively small between the difference between having a knee replacement and not. So, I would've thought they like patients don't get too concerned about that. I mean to me, one of the biggest is that after knee replacement, a significant percentage of patients, perhaps over 10%, are satisfied. In 2016, was dissatisfied. And most of that is with pain. And if people haven't had a patella resurfacing, surgeons may feel the pain is from the knee and as they do a resurfacing. Whereas if they had a resurfacing, they can't do any more surgery. So, one of the things behind this is that you haven't done something means you're more likely to be able to do something again." (K4 Author)</p>		<p>From patient point of view, there's no difference in the amount of time you spend in hospital, because you're in there. And the advantage to the patient is the possibility just of the words is they feel better. Whereas, you're a general anaesthetic procedure for the vast majority of time, although I did, but 99 percent of my witness were, even surgeons, were not happy to do that. (K4 Surgeon)</p> <p>"I think they like, second patients like is that you can return to work, which is important. Certainly within a few days of the morning as you walk a reasonable amount each day, and don't just sit in an office with your feet dangling for hours at a time. So, there was a quick you get that, but the recovery time was quicker (RancCV4 Surgeon)</p> <p>Various vein surgery was quite happily done by people if they could actually get to do it and was a source of people who had worse of health scores in patients" (RancCV4 Surgeon)</p> <p>"I think patients very much supported the patch being from surgeons. So, if you look at the data, patient recovery and quality of life and complications, serious complications are much lower in the endotherm and recovery is much quicker, sorry, in the endotherm not just endotherm. In the endotherm it's a bit quicker, and patients vote with their feet. So, you know, patients were coming and requesting endotherm above surgery" (RancCV3 Surgeon)</p> <p>"Patients would not believe the patch, but not for patients vein surgery. Patients always get a good about it and they remember the having and the having and the fact that legs were swollen and they get phlebitis and things, so they tend not to do it much. The more effective data on colour recovery done through class to show that the patients recovered quicker and felt better quicker with endotherm endotherm stuff than they did with surgical intervention. And so the patients liked it because it was quicker, return to work was quicker. And as a consequence, they reported less pain swelling and all those other things." (RancCV4 Surgeon)</p>
<p>E.C. Executing – Carrying out or accomplishing the implementation according to plan.</p>						
<p>E.D. Reflecting & Evaluating – Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experiences</p>						
<p>Other Codes</p>						
<p>Accuracy of HES codes</p>				<p>"I actually think the stem trajectory accuracy is somewhat coded by the introduction of codes, although codes were introduced I suspect coding trade probably although they are very good might have had a learning curve as well. I think in reality it was less steep than that but nevertheless the trend is exactly the same that it went up." (E2 Surgeon)</p> <p>"I think for the most part, patients preferred to be guided by the clinician actually. I think 80% of people usually say, "It's funny, you know, if you were to do informed consent by what's called, shared decision making, that's what, that you can go through the minutes of your very best shared decision-making using charts, colourful diagrams and your best, clear English and plain, you know, and then at the end of it you say, "So, what's your shared decision on this?" And they go, "I don't know Doc, what do you think I should do?" And then you think, what was the point of that? So, for the most part, I think patients prefer the clinician to tell them what's the best thing to have. We get the occasional example of emails to the CCG where patients say, "I want say radiotherapy" or whatever but something that's not commissioned, we have to say, well, "I'll email back saying, "Sorry, that's not what the value-based commissioning policy says at the moment according to best evidence and value for money so you can't have it". Generally, folks want to do what their clinicians tells them is the best according to the evidence." (General3 General practitioner)</p>	<p>"You know, there's still some issues with the National Joint Registry data, though initially when it started in 2010 involving data only for the UK and not necessarily, and given comparative issues with data in the first few years of the registry. Mandatory reporting only came online for the NJR, I think about ten years ago, though some of the historic NJR data may not be fully representative of the clinical picture, but I think it's fair to say that, you know, I was very surprised looking at your initial graph that you had a rate of patella resurfacing zero per cent to start with. That would strike me as a misreading." (K3 Surgeon)</p> <p>"I think the HES coding bit of it is plain straight down to how the codes were applied. And for this particular one, there was a change in the size and I've emailed you the data because, I can't remember them straight off hand, where several things happened. So you switch to creating HRGs out of the HES codes which were based on the basis for the payment by results. In amongst that there came the payment system that they looked on to the. At some point and I think I've sent you the dates, they switched on the logic which meant that if you coded the patella resurfacing at the time of a knee replacement, you got paid an uplift of a couple of a thousand pounds. I think it's." (K2 Coding expert/surgeon)</p> <p>"I think the only way you're going to find out if patella resurfacing is done or not and fitting it into the code is, I would probably not use that as data, I would use NJR data." (K2 Coding expert/surgeon)</p> <p>"Normally it's HES as well, so good at looking at change over time except in instances like this where there is a huge confounding factor being checked in around how coding questions and payment will be used." (K2 Coding expert/surgeon)</p> <p>"That chart you're showing there doesn't really, I think, actually, reflects probably, poorer practice, and what's been happening because even back in the early 2000s patella were being resurfaced to a much higher rate than zero percent, so I suspect there has been some inaccuracy with patella resurfacing." (K4 Surgeon)</p> <p>"Coding questions are normally not driven by the surgeons anyway, they're driven by the managers who want the money." (General1 General practitioner)</p> <p>"I suspect the reason when that jump happened, I bet you give money that they started to code on that they would get paid more money if they coded for patella resurfacing as well as total knee replacement." (General1 General practitioner)</p> <p>"We've always been rather cautious about HES data. And I would say the best source of data, really, would be the National Joint Registry because they record details of every implant. And the patella resurfacing is an implant, so they would have that data. And, certainly, my perception was that, back in the early 2000s, more than enough percent of people were doing patellar resurfacings. So, I would certainly agree that the data isn't what one would've expected. And, you know, would've thought it wouldn't have started it at all, but maybe started, perhaps, at 30% and gone up to 60% over that time period." (K4 Author)</p>	

IMPACT OF SIX SURGICAL TRIALS

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