Public Health England

Protecting and improving the nation's health

NHS Abdominal Aortic Aneurysm Screening Programme National Research Day 2019

Newcastle

7 February

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Welcome and introduction

Gerry Stansby, Research Lead, National AAA Screening Programme

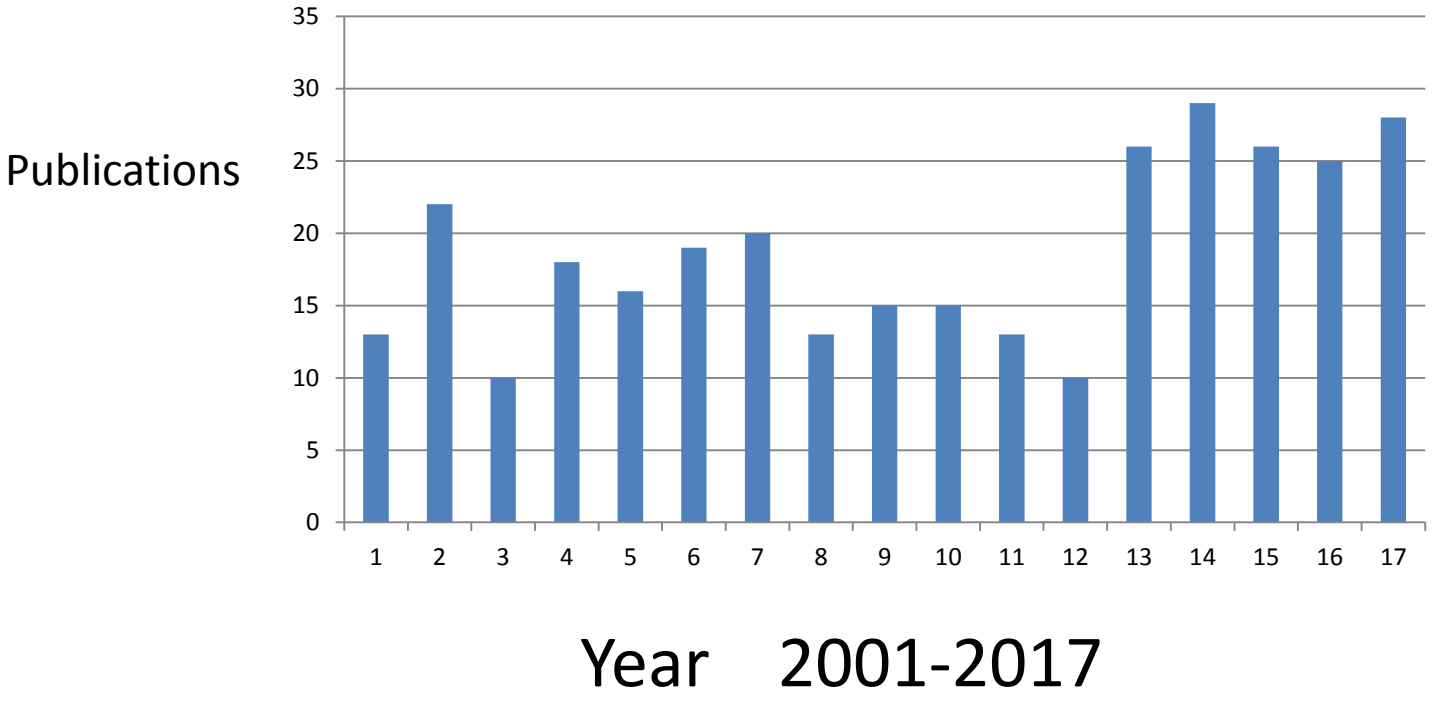
NAAASP research meeting.
Newcastle upon Tyne
7th February 2019.

WELCOME!

What is Research?

- Not just randomised trials! Although they are the gold standard for treatment effects.
  - Non-randomised studies/Diagnostic test accuracy studies
  - Qualitative research
  - Audits
  - Pilot studies
- No RCTs? What do we do then?
- What do we do if there if there is too much (conflicting) research!

AAA Screening – clinical trials Publications 2001-2017 (PubMed)

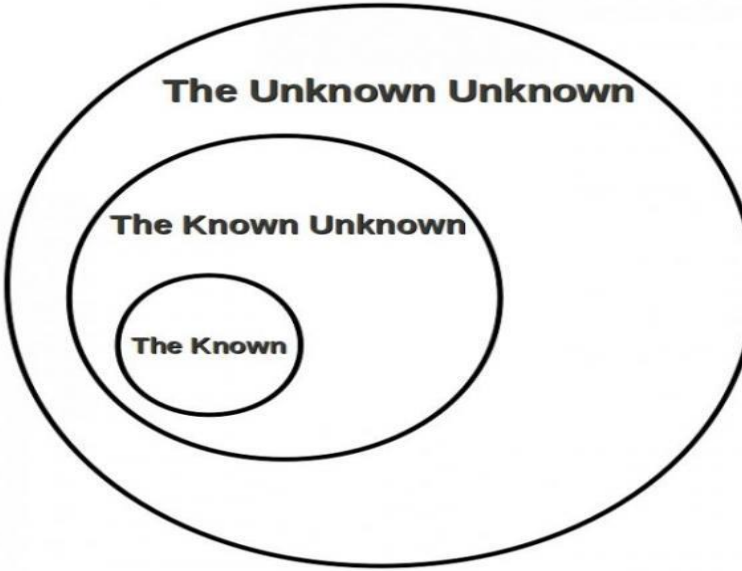


Solutions?

- New Collaborations/Multicentre trials
- Use existing data
  - NAAASP data
  - NHS data
- Modelling
  - Economic
  - Survival
- Non-randomised designs
  - Cohort studies/subgroup comparisons
  - Propensity score matching etc
- Qualitative research/QoL research
- Audits/Service improvement – done well

The unknown.

There are known knowns; there are things we know that we know. There are known unknowns; that is to say, there are things that we now know we don't know. But there are also unknown unknowns – there are things we do not know we don't know. (Donald Rumsfeld)



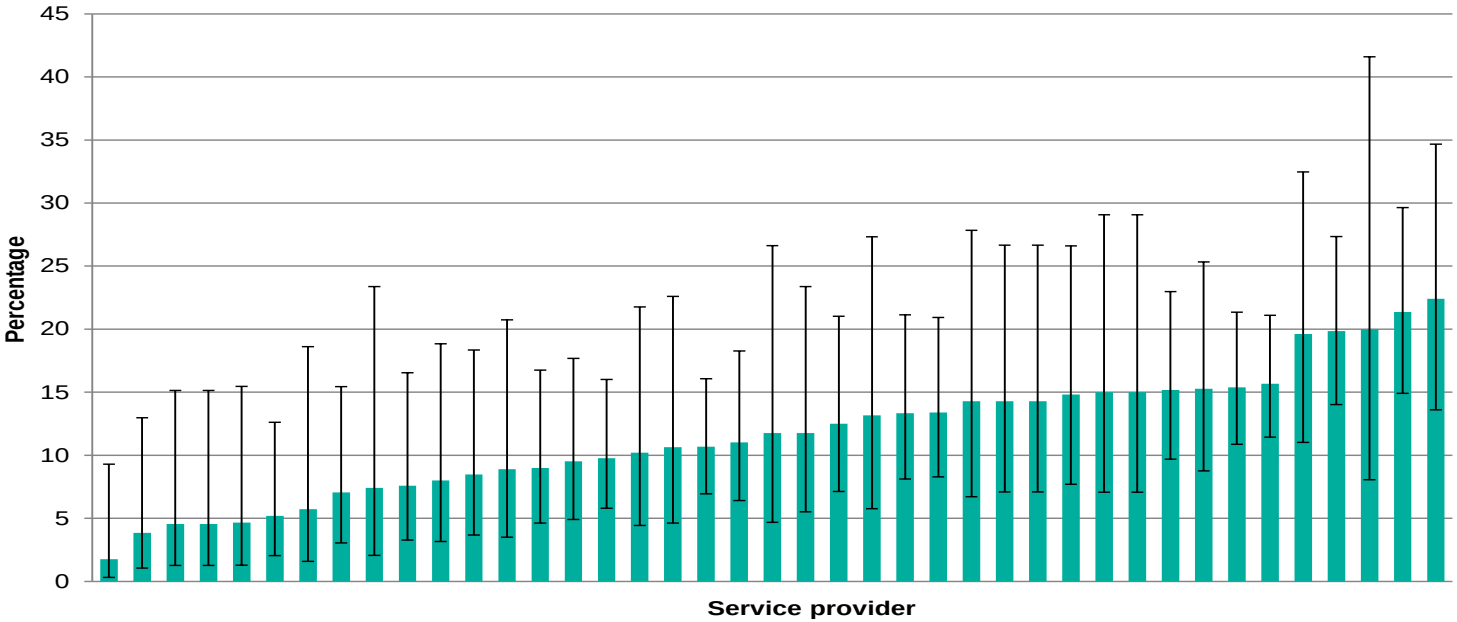
How to explain research to patients?

Your Aneurysm hasn’t changed – but the research has!

Generic “Screening” Research Challenges

- DNA rates and how to impact on them
- The test used – how to improve them/it
  - Diagnostically – more accurate
  - Functionally – easier to use/administer
- Logistics/Pathways/Service delivery
- Interaction with clinical services
  - Degree of control over treatment
  - Monitoring/contracting of treatment services
- Health economics/QoL
  - Cost effectiveness
  - Guidelines (NICE)

Variation: Turndown by provider



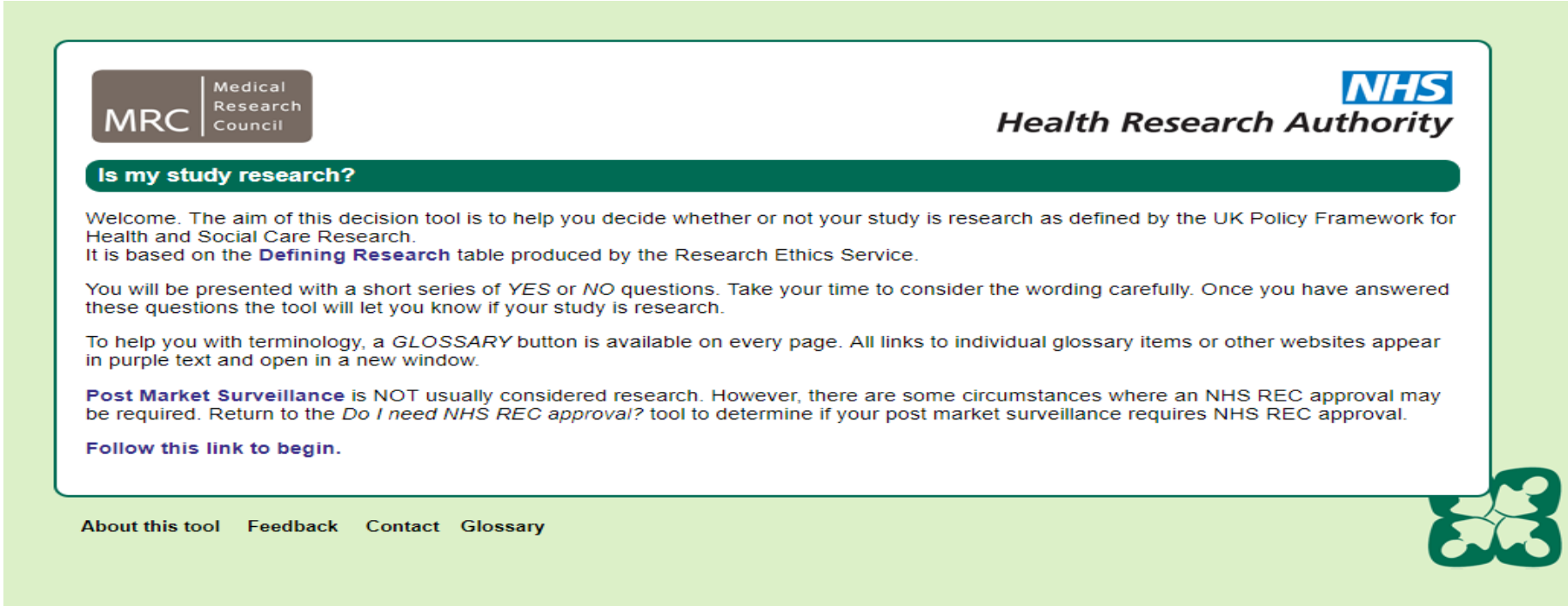
Why are there fewer RCT's in surgery?

- Once a surgical treatment is accepted testing against placebo is difficult - resistance exists to randomization in surgery vs non-surgical options.
- Surgeon's eagerness to introduce new techniques
- Surgeons use to making important decisions on limited information.
- How do you account for learning curves?
- Commercial pressures (mostly bad, occasionally good)
- Difficulties with recruitment, consent and randomization.
- Surgeons know best!

AAA research committee

- If it is research the AAA screening research committee needs to know and approve it.
  - Especially if patient data is involved
- If it is Audit or service improvement projects we also need to know – please.
- We are unlikely to say “no” unless there are major issues which go against SOPs or may be unethical.
- We may make suggestions how studies or evaluations could be improved.
- We may know of other studies which can provide pointers or help with study design etc
- We will respond quickly
- Dissemination of your work is essential -we can help

https://www.hra.nhs.uk/



More evidence = better decisions

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National programme update

Lisa Summers, Programme Manager, NHS AAA Screening Programme, Public Health England

Public Health England

NHS

NAAASP National Update
AAA National Research Day

Lisa Summers
National AAA Screening Programme Manager
7 February 2019

Headline figures

Headline figures	2009/10 to date	2018/19 Q3
Number men eligible for screening	2,191,659	293,920
Number of men offered screening	2,131,292	259,124
Number of men screened	1,667,984	183,839
Number of men with aorta ≥3.0 cm	19,928	1,759
Coverage (percentage)	76.1	62.5
Uptake (percentage)	78.3	70.9
Aneurysms detected (percentage)	1.19	0.96
Referred for surgery	5,118	657
Operated on	3,451	-
30 day post operative mortality (percentage)	0.52	-

KPIs 2018/19

Latest data published Q1 (April 2018 – June 2018)

AA2 (coverage of initial screen)

- Performance 23.2% (above acceptable threshold of 18%)

AA3 (coverage of annual surveillance screen)

- Performance 91.9% (above acceptable threshold 85%)

AA4 (coverage of quarterly surveillance screen)

- Performance 91.3% (above acceptable threshold 85%)

https://www.gov.uk/government/collections/nhs-screening-programmes-national-data-reporting under the '**Reports'** section

Standards, reporting & guidance

- Revision of pathway standards – implementation 1 April 2020
- Revision of data sets
- Data retention
- Advisory Group – patient representatives

IT & equipment

- SMaRT:-
  - Training for Co-ordinators/Admin
  - User Group
  - Version 9.6

- Equipment specification re-evaluation

Demographic feed

- NHAIS due to be decommissioned
- SPINE Demographics will be the sole authoritative source (for England & DMS) for identifying subjects who become newly eligible for AAA screening and for providing notifications of subsequent changes to their demographic/registration details
- AAA due for transfer March/April 2019
- Will receive all men registered AND resident in England as opposed to just registered in England
- Will receive men registered with the Defence Medical Services (DMS)
- Accessible Information Standard
- Business as usual
- Future – health & justice system

Inequalities toolkit

Four nations approach

GOV.UK

Search

Home > Abdominal aortic aneurysm screening: reducing inequalities

Public Health England

Guidance

Identifying inequalities

Published 24 May 2018

Contents

1. Legislation
2. Data reports
3. Deprivation and ethnic group analysis tool
4. Evaluation

Public Health England (PHE) aims to reduce health inequalities.

This guidance is to help local AAA screening providers, commissioners and other public health specialists identify interventions that can reduce inequalities by improving access to services and outcomes.

Some groups of men are less likely to attend AAA screening and this may increase health inequalities. Social deprivation is associated with both poorer attendance at screening and follow-up, and having an AAA.

1. Legislation

The Equality Act 2010 states that people should not be discriminated against based on their personal characteristics.

Public bodies and others carrying out public functions have a duty to consider the needs of all individuals. We need to collect information about our service users in order to provide evidence that we are doing this. This is why local providers should collect information about characteristics such as ethnic group.

Public Health England

Guidance

Reducing inequalities

Published 24 May 2018

Contents

Evidence-based recommendations
Lowering barriers to attendance at initial screening appointments
Engaging with public and professionals
Prior notification list and DNA analysis
Screening men with learning disabilities
Screening in prisons and secure mental health facilities

Evidence-based recommendations

Researchers in Scotland in November 2017 carried out a systematic review of factors influencing attendance at abdominal aortic aneurysm (AAA) screening and interventions to reduce inequalities.

They made the following recommendations.

1. Once men have been invited for screening it may be useful to provide extra support and personal reminders to those less likely to attend.
2. Services should give increased consideration to travel time to clinics, particularly for men less likely to attend, and public transport use.
3. It may help to work alongside colleagues who share an interest in improving men's engagement with healthcare. For example, services may be able to use times when men attend other health or social care services, such as GP or acute hospital services, to discuss screening.
4. Interventions to reduce inequalities implemented locally should be evaluated and the results widely disseminated, so effective interventions can be implemented elsewhere and ineffective ones can be stopped.

GOV.UK

Search

Home > Abdominal aortic aneurysm screening: reducing inequalities

Public Health England

Guidance

Submitting examples of best practice

Published 24 May 2018

Contents

Purpose
Before submission
Writing your case study
Submitting your case for shared learning

Purpose

This guidance explains the national process for providers, commissioners and other stakeholders to share learning and good practice in reducing barriers to attendance for men for AAA screening.

The PHE screening quality assurance service (SQAS) and 4 nations AAA screening group review all submitted case studies before approving for publication on the PHE screening blog.

In addition to case studies that have reduced barriers and improved uptake, we also welcome case studies that have not been successful as these may also help providers decide what actions to take.

Before submission

Before you submit a case for shared learning you should make sure:

- it does not conflict with the standard operating procedures for AAA screening

What next?

- Four nations ownership
- Toolkit evolution
- Submission process
- How will new inequalities initiatives be announced?
- Audit and service evaluation

Training and education

- Reaccreditation
- Health screener diploma:-
  - 17 screeners have successfully completed
  - 56 currently undertaking

- Assessor and learner support resource:-
  - Working with National Skills Academy on video resource
  - Electronic resource with information to support the mandatory units of the diploma
  - Half day update sessions in London, Birmingham and Manchester

- Review of e-learning modules for CSTs and screening technicians
  - Due to go live at the end of February 2019

Diary dates

- National Networking & Information Sharing day – 24 June 2019, Birmingham

Thank You!

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What don't we know? Lessons learnt and research that is still needed in AAA screening

Jonothan Earnshaw, Past Clinical Lead, NHS AAA Screening Programme, Public Health England

UK National Screening Committee

NHS Screening Programmes

Abdominal Aortic Aneurysm

Lessons learned, and research that is still needed in AAA screening

NAAASP Research Day 7/2/19

Jonothan J Earnshaw
Retired

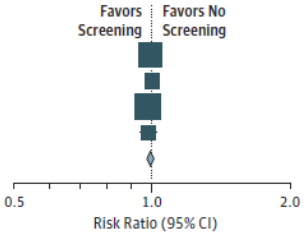
Exhausted

RCTs – the final word……

Figure. Random-Effects Model for Meta-analysis of All-Cause Mortality at Longest Reported Follow-up in the 4 Trials of Abdominal Aortic Aneurysm Screening

Study Name	Screening		No Screening		Risk Ratio (95% CI)
	No. of Events	No. of Patients	No. of Events	No. of Patients	
Western Australian trial[1] (men aged 64-83 y)	9649	19249	9734	19231	0.990 (0.971-1.010)
Chichester, United Kingdom, trial[2]	2036	2995	2067	3045	1.001 (0.967-1.037)
MASS[3]	13858	33883	14134	33887	0.981 (0.963-0.998)
Danish trial[4]	2931	6333	2964	6306	0.985 (0.949-1.022)
Total					0.987 (0.975-0.999)

$P = .03$; $I^2 = 0\%$



MASS indicates Multicenter Aneurysm Screening Study.

Invited Commentary

The Last (Randomized) Word on Screening for Abdominal Aortic Aneurysms

Frank A. Lederle, MD

Does screening work in Sweden?

Swedish Nationwide AAA Screening Program

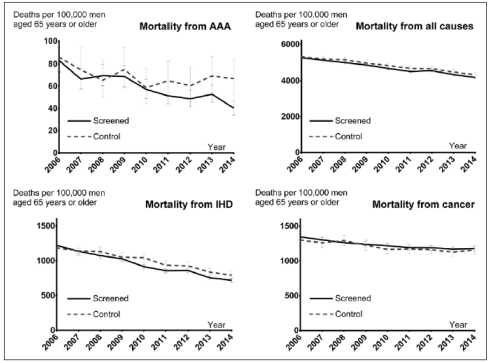


Figure 3. Time trends in mortality rates in the screened cohort (solid black line), consisting of counties that at the end of the study had screened ≥6 years (mean, 7.1 years), and the control cohort (interrupted gray line), consisting of counties that at the end of the study had screened for <4 years (mean, 1.5 years).
The *y* axis displays specific mortality per 100 000 men aged ≥65 years. The *x* axis displays calendar year in study. Error bars indicate 95% confidence intervals of mortality rate. AAA indicates abdominal aortic aneurysm; and IHD, ischemic heart disease.

Benefits and harms of screening men for abdominal aortic aneurysm in Sweden: a registry-based cohort study

Minna Johansson, Per Henrik Zahl, Volkert Siersma, Karsten Juhl Jørgensen, Bertil Marklund, John Brodersen

Summary

Background Large reductions in the incidence of abdominal aortic aneurysm (AAA) and AAA-related mortality mean that results from randomised trials of screening for the disorder might be out-dated. The aim of this study was to estimate the effect of AAA screening in Sweden on disease-specific mortality, incidence, and surgery.

Methods Individual data on the incidence of AAA, AAA mortality, and surgery for AAA in a cohort of men aged 65 years who were invited to screening between 2006 and 2009, were compared with data from an age-matched contemporaneous cohort of men who were not invited for AAA screening. We also analysed national data for all men aged 40–99 years between Jan 1, 1987, and Dec 31, 2015, to explore background trends. Adjustment for confounding was done by weighting the analyses with a propensity score obtained from a logistic regression model on cohort year, marital status, educational level, income, and whether the patient already had an AAA diagnosis at baseline. Adjustment for differential attrition was also done by weighting the analyses with the inverse probability of still being in the cohort 6 years after screening. Generalised estimating equations were used to adjust the variance for repeated measurement and in response to the weighting.

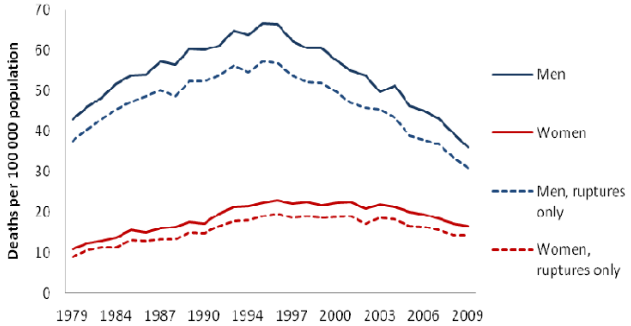
Findings AAA mortality in Swedish men has decreased from 36 to ten deaths per 100 000 men aged 65–74 years between the early 2000s and 2015. Mortality decreased at similar rates in all Swedish counties, irrespective of whether AAA screening was offered. After 6 years with screening, we found a non-significant reduction in AAA mortality associated with screening (adjusted odds ratio [aOR] 0·76, 95% CI 0·38–1·51), which means that two men (95% CI −3 to 7) avoid death from AAA for every 10 000 men offered screening. Screening was associated with increased odds of AAA diagnosis (aOR 1·52, 95% CI 1·16–1·99; p=0·002) and an increased risk of elective surgery (aOR 1·59, 95% CI 1·20–2·10; p=0·001), such that for every 10 000 men offered screening, 49 men (95% CI 25–73) were likely to be overdiagnosed, 19 of whom (95% CI 1–37) had avoidable surgery that increased their risk of mortality and morbidity.

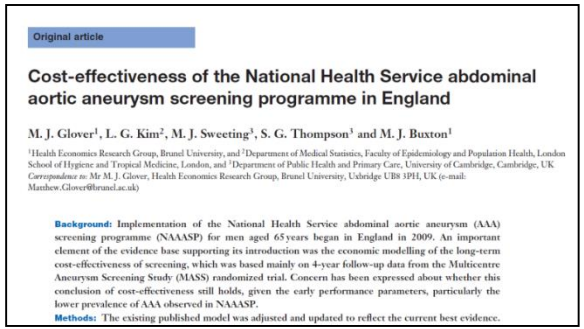
Interpretation AAA screening in Sweden did not contribute substantially to the large observed reductions in AAA mortality. The reductions were mostly caused by other factors, probably reduced smoking. The small benefit and substantially less favourable benefits-to-harm balance call the continued justification of the intervention into question.

Funding Research Unit and Section for General Practice, FoUU-centrum Fyrbodal, Sweden, and the region of Västra Götaland, Sweden.

Is AAA screening working in England?

Screening Programmes





Original article

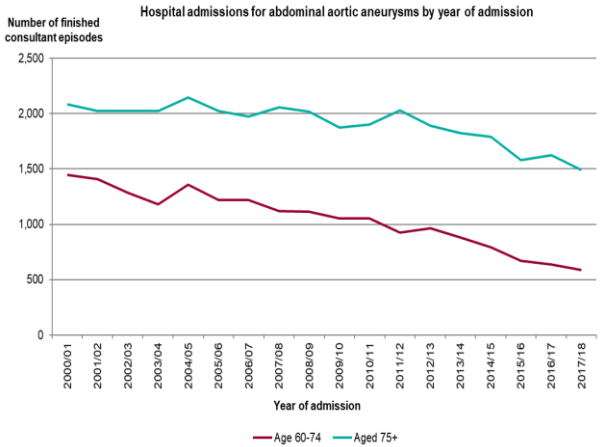
Cost-effectiveness of the National Health Service abdominal aortic aneurysm screening programme in England

M. J. Glover[1], L. G. Kim[2], M. J. Sweeting[3], S. G. Thompson[3] and M. J. Buxton[1]

[1]Health Economics Research Group, Brunel University, and [2]Department of Medical Statistics, Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, London, and [3]Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK
Correspondence to: Mr M. J. Glover, Health Economics Research Group, Brunel University, Uxbridge UB8 3PH, UK (e-mail: Matthew.Glover@brunel.ac.uk)

Background: Implementation of the National Health Service abdominal aortic aneurysm (AAA) screening programme (NAAASP) for men aged 65 years began in England in 2009. An important element of the evidence base supporting its introduction was the economic modelling of the long-term cost-effectiveness of screening, which was based mainly on 4-year follow-up data from the Multicentre Aneurysm Screening Study (MASS) randomized trial. Concern has been expressed about whether this conclusion of cost-effectiveness still holds, given the early performance parameters, particularly the lower prevalence of AAA observed in NAAASP.

Methods: The existing published model was adjusted and updated to reflect the current best evidence.



Screening women

Analysis of clinical benefit, harms, and cost-effectiveness of screening women for abdominal aortic aneurysm

Michael J Sweeting, Katya L Masconi, Edmund Jones, Pinar Ulug, Matthew J Glover, Jonathan A Michaels, Matthew J Bown, Janet T Powell, Simon G Thompson

Summary

Background A third of deaths in the UK from ruptured abdominal aortic aneurysm (AAA) are in women. In men, national screening programmes reduce deaths from AAA and are cost-effective. The benefits, harms, and cost-effectiveness in offering a similar programme to women have not been formally assessed, and this was the aim of this study.

Methods We developed a decision model to assess predefined outcomes of death caused by AAA, life years, quality-adjusted life years, costs, and the incremental cost-effectiveness ratio for a population of women invited to AAA screening versus a population who were not invited to screening. A discrete event simulation model was set up for AAA screening, surveillance, and intervention. Relevant women-specific parameters were obtained from sources including systematic literature reviews, national registry or administrative databases, major AAA surgery trials, and UK National Health Service reference costs.

Findings AAA screening for women, as currently offered to UK men (at age 65 years, with an AAA diagnosis at an aortic diameter of ≥3·0 cm, and elective repair considered at ≥5·5cm) gave, over 30 years, an estimated incremental cost-effectiveness ratio of £30 000 (95% CI 12 000–87 000) per quality-adjusted life year gained, with 3900 invitations to screening required to prevent one AAA-related death and an overdiagnosis rate of 33%. A modified option for women (screening at age 70 years, diagnosis at 2·5 cm and repair at 5·0 cm) was estimated to have an incremental cost-effectiveness ratio of £23 000 (9500–71 000) per quality-adjusted life year and 1800 invitations to screening required to prevent one AAA-death, but an overdiagnosis rate of 55%. There was considerable uncertainty in the cost-effectiveness ratio, largely driven by uncertainty about AAA prevalence, the distribution of aortic sizes for women at different ages, and the effect of screening on quality of life.

Interpretation By UK standards, an AAA screening programme for women, designed to be similar to that used to screen men, is unlikely to be cost-effective. Further research on the aortic diameter distribution in women and potential quality of life decrements associated with screening are needed to assess the full benefits and harms of modified options.

Lancet 2018; 392: 487–95
Published Online July 26, 2018
http://dx.doi.org/10.1016/S0140-6736(18)31222-4
See Comment page 454

Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK (M J Sweeting PhD, K L Masconi PhD, E Jones PhD, Prof S G Thompson DSc); Department of Health Sciences (M J Sweeting), Department of Cardiovascular Sciences and National Institute of Health Research Leicester Biomedical Research Centre (Prof M J Bown MD), University of Leicester, Leicester, UK; Vascular Surgery Research Group, Charing Cross Hospital, Imperial College London, London, UK (P Ulug PhD, Prof J T Powell MD); Health Economics Research Group, Brunel University London, Uxbridge, UK (M J Glover MSc); and Health Economics and Decision Science, School of Health and Related Research, University of Sheffield, Sheffield, UK

Targeted screening?

Targeted screening?

BJS11047

Original article

Targeted screening for abdominal aortic aneurysm in siblings is cost-effective

R. Hultgren[1,2], A. Linné[3] and S. Svensjö[4,5,6]

[1]Department of Molecular Medicine and Surgery, Karolinska Institutet, [2]Department of Vascular Surgery, Karolinska University Hospital, and [3]Section of Vascular Surgery, Department of Surgery, Department of Clinical Science and Education, Karolinska Institutet at Södersjukhuset, Stockholm, [4]Department of Vascular Surgery, Falun County Hospital, and [5]Centre for Clinical Research, Falun, and [6]Department of Surgical Sciences, Section of Vascular Surgery, Uppsala University, Uppsala, Sweden

Correspondence to: Dr S. Svensjö, Department of Vascular Surgery, Falun County Hospital, Falun 79182, Sweden (e-mail: sverker.svensjo@ltdalarna.se)

Background: Population screening for abdominal aortic aneurysm (AAA) in 65-year-old men has been shown to be cost-effective. A risk group with higher prevalence is siblings of parents with an AAA. This health economic model-based study evaluated the cost-effectiveness of targeted AAA screening of siblings.

Methods: A Markov model validated against other screening programmes was used. Two methods of identifying siblings were analysed: direct questioning of patients with an AAA (method A), and a second employing a national multigeneration register (method B). The prevalence was based on observed ultrasound data on AAAs in siblings. Additional parameters were extracted from RCTs, vascular registers, literature and ongoing screening. The outcome was cost-effectiveness, probability of cost-effectiveness at different willingness-to-pay (WTP) thresholds, reduction in AAA death, quality-adjusted life-years (QALYs) gained and total costs on a national scale.

Results: Methods A and B were estimated to reduce mortality from AAA, at incremental cost-effectiveness ratios of €7800 (95 per cent c.i. 4627 to 12 982) and €7666 (5000 to 13 373) per QALY respectively. The probability of cost-effectiveness was 99 per cent at a WTP of €23 000. The absolute risk reduction in AAA deaths was five per 1000 invited. QALYs gained were 27 per 1000 invited. In a population of ten million, methods A and B were estimated to prevent 12 and 17 AAA deaths, among 2418 and 3572 siblings identified annually, at total costs of €499 500 and €728 700 respectively.

Conclusion: The analysis indicates that aneurysm-related mortality could be decreased cost-effectively by applying a targeted screening method for siblings of patients with an AAA.

Paper accepted 10 October 2018

Published online in Wiley Online Library (www.bjs.co.uk). **DOI:** 10.1002/bjs.11047

NHS
Screening Programmes

Making every contact count….

- Smoking cessation
- Vascular health checks
- Mentioning other screening programmes
    - bowel cancer
    - prostate cancer
    - lung cancer

Research in surveillance

- 15,000 men (and others not in NAAASP)
- All arteriopaths
- Invested
- Monitored regularly

NHS
Screening Programmes

AAA rupture in surveillance

	Number of men	Ruptures (N)	Follow-up (person-years)	Incidence rate per 100 person-years (95% CI)
Overall	18,652	31	50,095	0.06 (0·04, 0·09)
Routinely invited	15,527	25	42,220	0.06 (0·04, 0·09)
Self-referred	3,125	6	7,876	0.08 (0·03, 0·17)
Initial aortic measurement				
Grouping 1				
3·0-4·4cm	16,430	20	46,576	0·04 (0·03, 0·07)
4·5-5·4cm	2,222	11	3,519	0·31 (0·17, 0·56)
Grouping 2				
3·0-4·9cm	17,883	28	49,349	0·06 (0·04, 0·08)
5·0-5·4cm	769	3	746	0·40 (0·13, 1·25)
Last known aortic measurement				
Grouping 1				
<3·0cm	-	0	1,713	0 -
3·0-4·4cm	-	13	41,788	0·03 (0·02, 0·05)
4·5-5·4cm	-	18	6,532	0·28 (0·17, 0·44)
5·5cm+	-	0	32	0 -
Grouping 2				
<3·0cm	-	0	1,713	0 -
3·0-4·9cm	-	20	45,594	0·04 (0·03, 0·07)
5·0-5·4cm	-	11	2,726	0·40 (0·22, 0·73)
5·5cm+	-	0	32	0

Men safe in surveillance in NAAASP
No need to change referral threshold

NHS
Screening Programmes

Deaths in surveillance

	Number of men	Deaths (N)	Follow-up (person-years)	Mortality rate per 100 person-years (95% CI)	
Overall	18,652	981	50,103	1·96	(1·84-2·08)
Routinely invited	15,527	802	42,226	1.90	(1.77-2.04)
Self-referred	3,125	179	7,877	2.27	(1.96-2.63)
Initial AAA measurement					
Grouping 1					
3·0-4·4cm	16,430	912	46,581	1·96	(1·83-2·09)
4·5-5·4cm	2,222	69	3,522	1·96	(1·55-2·48)
Grouping 2					
3·0-4·9cm	17,883	966	49,354	1·96	(1·84-2·08)
5·0-5·4cm	769	15	749	2·00	(1·21-3·32)
Last known AAA measurement					
Grouping 1					
<3·0cm		19	1,713	1·11	(0·71-1·74)
3·0-4·4cm		826	41,790	1·98	(1·85-2·12)
4·5-5·4cm		134	6,535	2·05	(1·73-2·43)
5·5cm+		2	33	6·02	(1·51-24·08)
Grouping 2					
<3·0cm		19	1,713	1·11	(0·71-1·74)
3·0-4·9cm		896	45,597	1·97	(1·84-2·10)
5·0-5·4cm		64	2,729	2·35	(1·84-3·00)
5·5cm+		2	33	6·02	(1·51-24·08)

Mortality around 2%/annum

NHS
Screening Programmes

Causes of death in surveillance

AAA 3%

Cancer 31%

Vascular or cardiac 26%

Other (non cancer, non cardiac) 29%

Unknown 10%

NHS

Screening Programmes

Should referral threshold be changed?

Health

'Concern' as study highlights aneurysm death rate

By James Gallagher
Health and science reporter, BBC News website

24 November 2016 | Health

Share

The death rate from abdominal aortic aneurysms is more than three times higher in England than in the US, analysis of official data shows.

The weakening and swelling of the main blood vessel from the heart is normally fatal if it bursts.

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ORIGINAL ARTICLE

Thresholds for Abdominal Aortic Aneurysm Repair in England and the United States

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N Engl J Med 2016; 375:2051-2059 | November 24, 2016 | DOI: 10.1056/NEJMoa1600931

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BACKGROUND

Thresholds for repair of abdominal aortic aneurysms vary

MEDIA IN THIS ARTICLE
FIGURE 1

….study does not conclusively prove that the lower operation rate in England is the only cause of the higher number of aneurysm deaths.

Monitoring in surveillance

- Reducing surveillance intervals
- Personalised surveillance
  - genetics
  - individual factors
  - scan history
- Risk factor monitoring
  - improved nurse surveillance
  - prehabilitation

ORIGINAL CONTRIBUTION

Surveillance Intervals for Small Abdominal Aortic Aneurysms
A Meta-analysis

The RESCAN Collaboration*

THE SURVIVAL RATE FOLLOWING rupture of an abdominal aortic aneurysm (AAA) is only ~20%,[1] making AAAs an important cause of mortality. In the United States in 2009, there were 8500 AAA-related deaths.[2] AAAs are usually asymptomatic until rupture occurs. A 10-year randomized trial of ultrasound screening in the United Kingdom reduced ruptured aneurysm-related death rates from 0.87% to 0.46% (relative risk reduction, 48%; 95% CI, 37%-57%).[3] Screening is recommended by the US Preventive Services Task Force for men aged 65 to 74 years who have ever smoked.[4] Following detection of AAA (aortic diameter ≥3.0 cm), the principal surgical strategy is to repair the AAA before rupture occurs. However, elective open AAA repair is associated with a 5% mortality rate.[5] Although the operative risk is lower than 2% for patients undergoing endovascular repair,[6] late complications make the long-term outcomes similar, irrespective of operative approach.[7]

In patients with small AAA (diameter <5.5 cm), the risk of rupture is lower than the risk of surgery and surveillance is indicated.[3] The majority of small AAAs grow slowly, but there is

CME available online at www.jamanetworkcme.com and questions on p 830.

Importance Small abdominal aortic aneurysms (AAAs [3.0-cm-5.4-cm in diameter]) are monitored by ultrasound surveillance. The intervals between surveillance scans should be chosen to detect an expanding aneurysm prior to rupture.

Objective To limit risk of aneurysm rupture or excessive growth by optimizing ultrasound surveillance intervals.

Data Sources and Study Selection Individual patient data from studies of small AAA growth and rupture were assessed. Studies were identified for inclusion through a systematic literature search through December 2010. Study authors were contacted, which yielded 18 data sets providing repeated ultrasound measurements of AAA diameter over time in 15 471 patients.

Data Extraction AAA diameter were analyzed using a random-effects model that allowed for between-patient variability in size and growth rate. Rupture rates were analyzed by proportional hazards regression using the modeled AAA diameter as a time-varying covariate. Predictions of the risks of exceeding 5.5-cm diameter and of rupture within given time intervals were estimated and pooled across studies by random effects meta-analysis.

Results AAA growth and rupture rates varied considerably across studies. For each 0.5-cm increase in AAA diameter, growth rates increased on average by 0.59 mm per year (95% CI, 0.51-0.66) and rupture rates increased by a factor of 1.91 (95% CI, 1.61-2.25). For example, while an 8-month interval (95% CI, 6.7-8.1) is sufficient for a 3.0-cm AAA to increase, on average, a 1.4-year surveillance interval (95% CI, 6.7-8.1) is sufficient for a 3.0-cm AAA, while an 8-month interval (95% CI, 7-10) is necessary for a 5.0-cm AAA. To control the risk of rupture in men to below 1%, the corresponding estimated surveillance intervals are 8.5 years (95% CI, 7.0-10.5) and 17 months (95% CI, 14-22).

Conclusion and Relevance In contrast to the commonly adopted surveillance intervals in current AAA screening programs, surveillance intervals of several years may be clinically acceptable for the majority of patients with small AAA.

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substantial variation in growth rates between different individuals.[8] The intervals between ultrasound surveillance examinations used in randomized trials of screening[3] depend on aneurysm size. However, no consensus exists regarding the optimal time intervals between ultrasounds.[9]

Heterogeneity exists in the literature describing AAA growth and rupture, resulting in an inability to aggregate studies.[10,11] Rarely is the variability in growth rates between patients reported, a factor that should be consid-

*Authors/RESCAN Collaboration and Author Affiliations are listed at the end of this article.

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Reducing AAA growth

- Medication: metformin
- Risk factor management (smoking)

NHS
Screening Programmes

Discharge from surveillance

- Combination of age and diameter
  - 83 years old 3.9cm
  - 71 years old 3.2cm
  - 75 years old 4.7cm

- Previous scan history
- Artificial intelligence

Nursing workshop: proposal

NHS Screening Programmes

Nurse assessments

(i) ‘fit for open repair’

(ii) cardiovascular risk reduction

All

Within 3 months of diagnosis (face to face)

There months later (telephone)

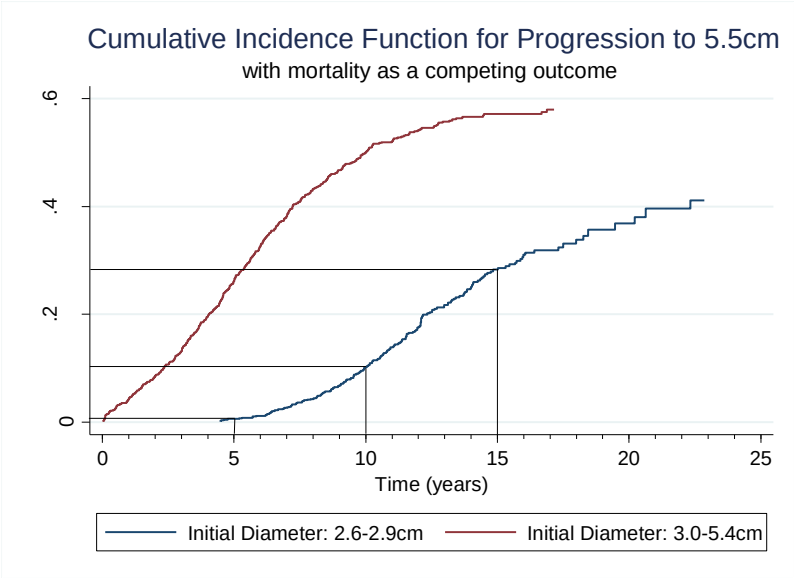
Men with small AAA

Repeat above at intervals (? Every 2/4/6 years)

Men with medium AAA

Repeat annually + prehabilitation

Subaneurysmal aorta at age 65



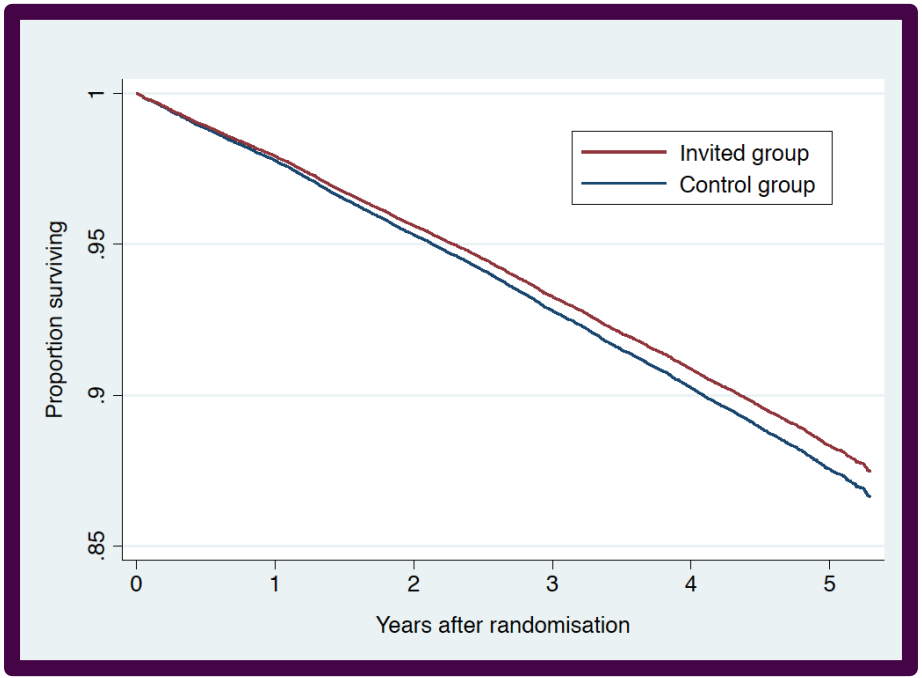
NHS
Screening Programmes

Men with subaneurysmal aorta at age 65:
the case for surveillance

- Systematic review: case not yet made
- Need further information:
    - effect of prolonged surveillance on QoL
    - operation rate and outcomes

Ongoing project to collect QoL and outcome data for modelling study of cost effectiveness

Extended vascular screening: VIVA trial 2017



NHS
Screening Programmes

Extended vascular screening

- VIVA trial (2017): AAA screening, blood pressure, ABPI and cholesterol. Men aged 65-74. 7% reduction in mortality at 5 years
- UK: AAA screening plus vascular health checks
- DANCAVAS (reported at ESVS): CT screening whole aorta, ECG (for AF), ABPI, bloods. Men aged 65-74. 30% have an abnormality - results 2021

NHS
Screening Programmes

Research in AAA screening: top tips

- Subaneurysmal aorta: QoL assessment and modelling
- Personalised surveillance intervals
- Discharge from surveillance
- Metformin to reduce AAA growth
- Is screening working?


A SIMPLE SCAN
COULD SAVE YOUR LIFE


That's all Folks!

Public Health England

Protecting and improving the nation's health

NHS Abdominal Aortic Aneurysm Screening Programme National Research Day 2019

Newcastle

7 February

Future of NHS AAA screening: key priorities

Akhtar Nasim, University Hospitals of Leicester NHS Trust

Public Health England

NHS

Future of NHS AAA Screening – key priorities

Akhtar Nasim
National AAA Screening Programme Clinical Lead
7 February 2019

Something to celebrate!

- 10th Anniversary of start of the programme
- Over 1.5 million men screened
- Over 5000 men referred for surgery
- NAAASP comms team using this opportunity to promote the programme

Factors influencing future of NAAASP

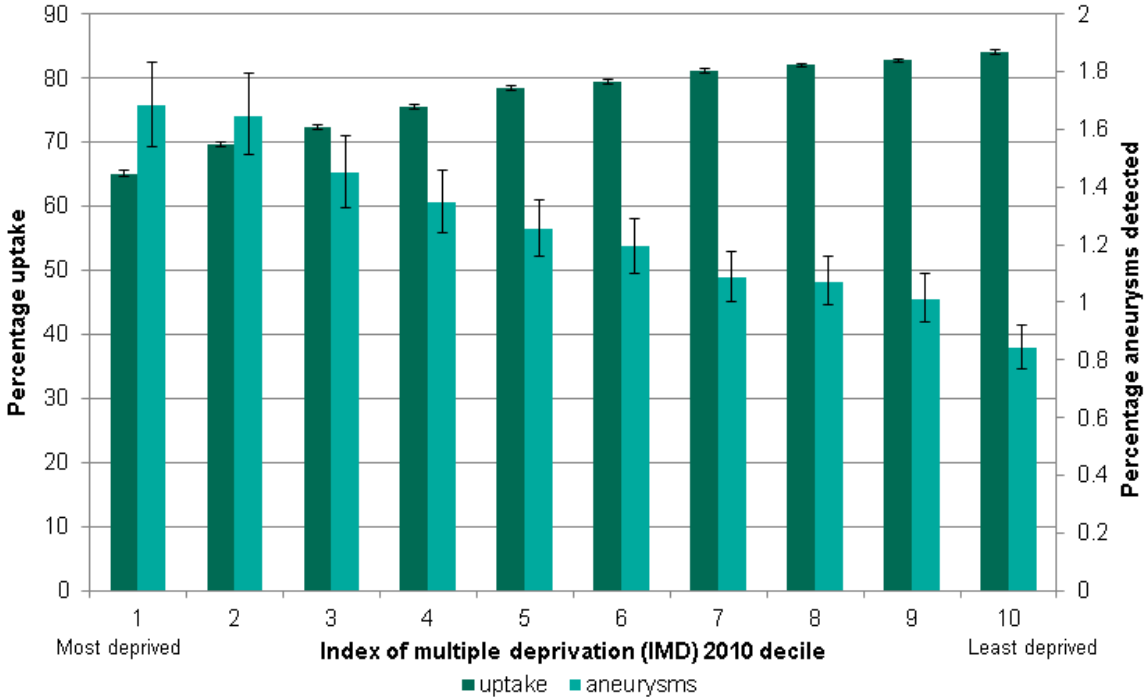
- Decreasing prevalence (partly related to decline in smoking)
- Concerns about over diagnosis of aneurysms that would never have ruptured or required surgery at follow-up
- Psychological stress associated with a new diagnosis of AAA
- Prevalence of AAA known to be lower in those who undergo screening compared with those who do not – *accentuation of healthcare inequalities*
- Treatment methods subject to change/ or might evolve (NICE guidelines!)
- Evolution of programme informed by research and data analysis

Changes affecting the programme in the near to medium term

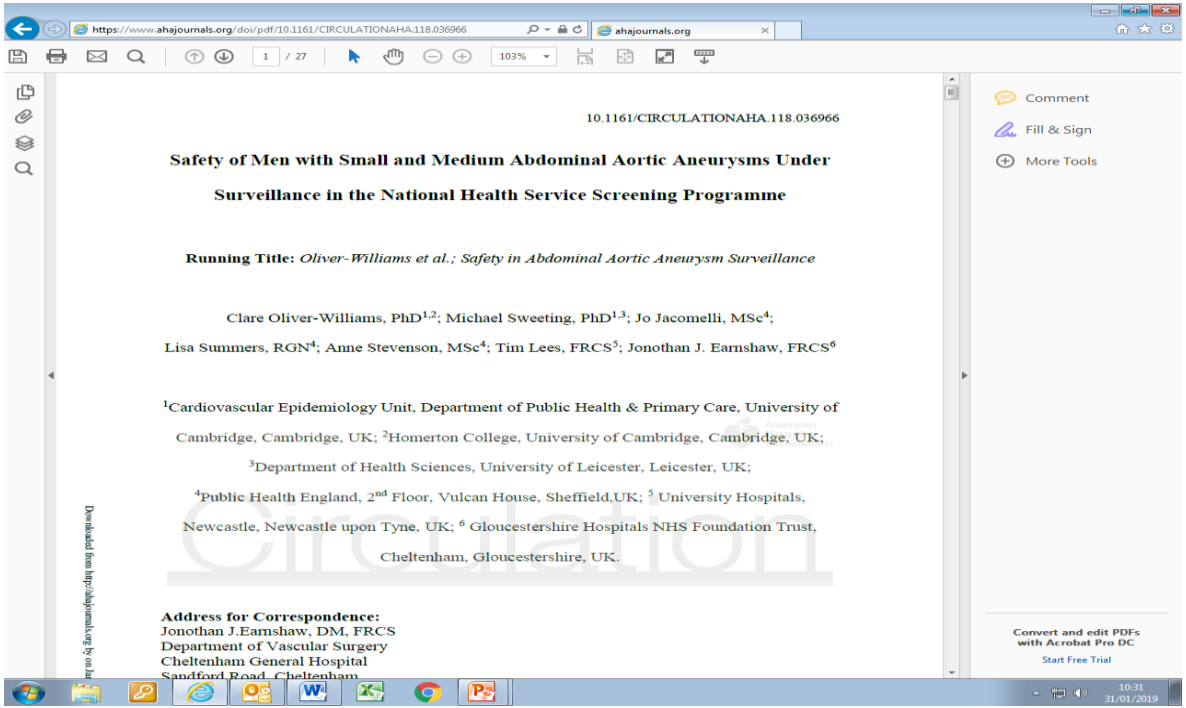
- Tackling inequalities
- Reducing surveillance intervals in men with small aneurysms
- Assessment of quality of life in men undergoing AAA screening & surveillance
- NICE guidelines!

Tackling Inequalities

Effect of Deprivation



Surveillance intervals (1)



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Safety of Men with Small and Medium Abdominal Aortic Aneurysms Under Surveillance in the National Health Service Screening Programme

Running Title: *Oliver-Williams et al.; Safety in Abdominal Aortic Aneurysm Surveillance*

Clare Oliver-Williams, PhD[1,2]; Michael Sweeting, PhD[1,3]; Jo Jacomelli, MSc[4]; Lisa Summers, RGN[4]; Anne Stevenson, MSc[4]; Tim Lees, FRCS[5]; Jonothan J. Earnshaw, FRCS[6]

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10:31
31/01/2019

Surveillance intervals (2)

- In 2013, HTA report on meta-analysis off AAA surveillance concluded surveillance could be reduced without increasing risk of rupture
- NAAASP now has over 15000 men with AAA in surveillance
- Analysis of NAAASP surveillance data and review by national team (advisory board and RAC)
- Strategic discussions at the 4-nations AAA screening group – recommendation made to for surveillance intervals: 3.0 to 4.4cm every 2 years, 4.5 to 5.4cm every 3 months
- These proposed changes in congruence with ESVS and NICE (draft) guidelines

Surveillance Intervals (3)

- Proposal to be submitted to UK NSC for endorsement
- Proposed change 2021/2022 cohort

QoL of men in surveillance (1)

- Has implications if we want to adjust or extend the programme
- Should we add men with sub-aneurysmal aorta in surveillance
- Commissioned report suggested this might impact significantly on quality of life

QoL of men in surveillance (2)

- ScHARR has been commissioned to implement HRQol measurement
- Electronic personal assessment questionnaire (ePAQ) has been developed and validated
- Work ongoing with Northgate and ScHARR on administration of ePAQ
- To be piloted in 3 screening areas for 3 months
- Currently in final stages of development

Nice Guidelines

?

Changes to consider in the future

- Improve outcomes of men in surveillance
- Develop and implement strategy for pre-habilitation of men getting near threshold for surgery
- Workforce review to ensure programme resilience and implement the above strategies
- 10 years since first cohorts screened – should we consider re-screening these men (aged 75), particularly those with sub-aneurysmal aorta, in view of some evidence suggesting change in epidemiology of AAA disease

Improving outcomes of men in surveillance

- Analysis of causes of death in surveillance suggests: 26% due to vascular or cardiac causes, 31% due to cancer, 29% (non cancer, non cardiac)
- Better risk factor management and BMT may improve outcomes in patient dying from vascular or cardiac causes
- In view of concerns that there may psychological harm to men in surveillance and some might be unfit for intervention when their AAA reaches threshold – at least some good can potentially be achieved by implementing the above strategy

Pre-habilitation of men (4.5-5.4cm AAA)

- Tackling smoking and other modifiable risk factors
- Assessment of operative risk and life expectancy
- Assessment of medical co-morbidities e.g. identifying and dealing with IHD
- Exercise
- Remote Ischaemic pre-conditioning
- Identifying and dealing with IHD

Workforce review

- Some of the changes proposed to improve outcomes of men in surveillance and implementing pre-habilitation can not be delivered with current workforce configuration
- Demand for nurse time in NAAASP will have to increase
- Implementation of pre-habilitation may also require more input from clinical leads

What to do with sub-aneurysmal aorta?

- Subaneurysmal aorta : proposal endorsed by NSC 23.6.17
- QoL assessment (in conjunction with ScHARR) will be instrumental in progressing this proposal with NAAASP
- Some modelling and retrospective review of outcomes of men with subaneurysmal aorta at 65 years who develop a 5.5cm AAA during surveillance being undertaken
- Cost-benefit analysis required for either entering this group into surveillance or re-screening at intervals

Summary

- Great progress over past 10 years
- Continue to promote audit and research, and learn from results
- The data being generated by NAAASP has potential to significantly improve our knowledge of natural history of AAA disease and inform evidence based change in the management of this condition
- Has to continue to evaluate and embrace newer technologies for screening
- The programme has to evolve with time to ensure that it is fit for purpose

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NHS Abdominal Aortic Aneurysm Screening Programme National Research Day 2019

Newcastle

7 February

Quality of life in AAA screening

Professor Jonathan Michaels, Professor of Clinical Decision Science, School of Health and Related Research, University of Sheffield

NAAASP Research Day
7th Feb 2019

Vascular Research Group

School of Health and Related Research (ScHARR),
University of Sheffield

Outline

1. Rationale for HRQoL data collection alongside NAAASP
2. Electronic data collection
3. Measures of HRQoL

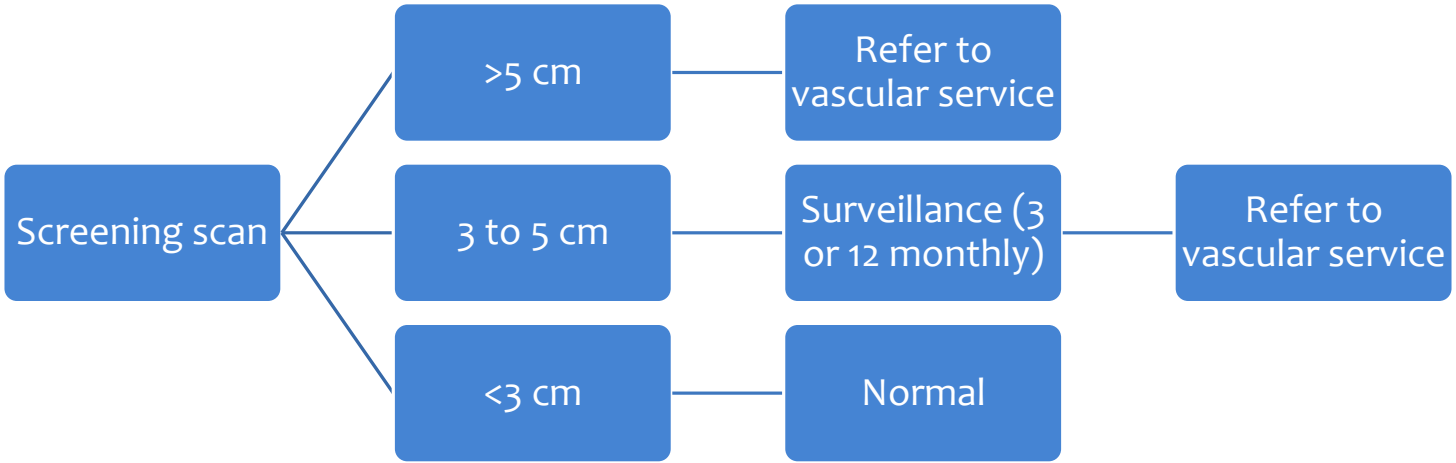
Cost effectiveness of AAA Screening

Table 4 Abdominal aortic aneurysm screening model: 30-year cost-effectiveness results at 2010–2011 prices for the current National Health Service abdominal aortic aneurysm screening programme

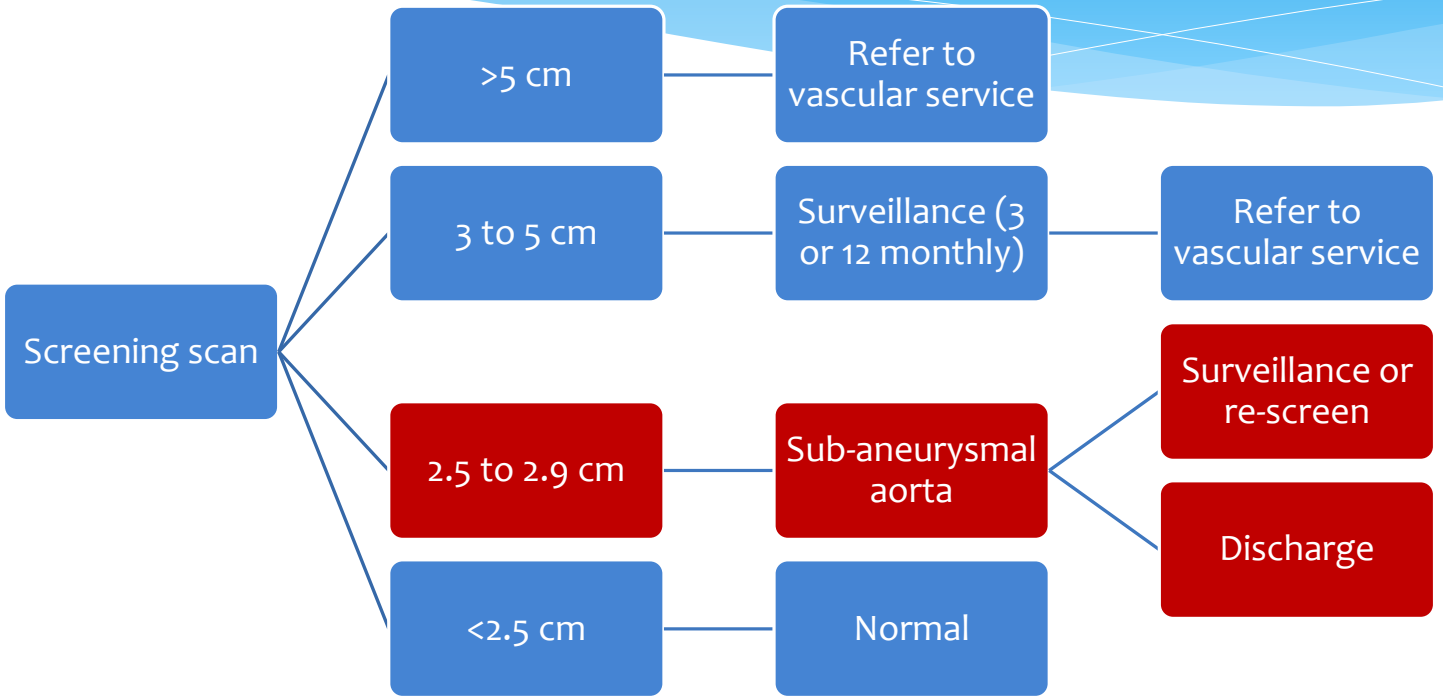
	Control group	Invited group	Difference
Life-years†	12·719	12·727	0·0084
QALYs†	9·921	9·928	0·0067
Costs (£)	269	316	47
ICER (£)‡			
Life-years		5758 (4285, 7410)	
QALYs		7370 (5467, 9443)	

Glover et al. *BJS* 2014

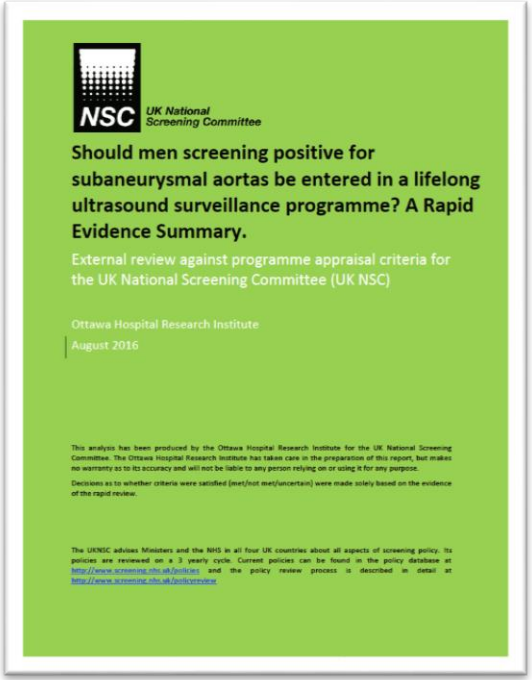
Current Screening Programme



Current Screening Programme



QoL effects of AAA Screening



NSC UK National Screening Committee

Should men screening positive for subaneurysmal aortas be entered in a lifelong ultrasound surveillance programme? A Rapid Evidence Summary.

External review against programme appraisal criteria for the UK National Screening Committee (UK NSC)

Ottawa Hospital Research Institute

August 2016

This analysis has been produced by the Ottawa Hospital Research Institute for the UK National Screening Committee. The Ottawa Hospital Research Institute has taken care in the preparation of this report, but makes no warranty as to its accuracy and will not be liable to any person relying on or using it for any purpose.

Decisions as to whether criteria were satisfied (met/not met/uncertain) were made solely based on the evidence of the rapid review.

The UKNSC advises Ministers and the NHS in all four UK countries about all aspects of screening policy. Its policies are reviewed on a 3 yearly cycle. Current policies can be found in the policy database at http://www.screening.nhs.uk/policies and the policy review process is described in detail at http://www.screening.nhs.uk/policyreview

Many different tools were used to measure quality of life, and comparison groups varied between studies. Follow-up times were relatively short, usually six months to one year after screening or surgery. SF-36 was the most commonly used tool to measure QoL, and QoL was typically lower in people with AAA. Anxiety and depression levels did not differ significantly between comparison groups in any studies.

Cost effectiveness of AAA Screening

Table 4 Abdominal aortic aneurysm screening model: 30-year cost-effectiveness results at 2010–2011 prices for the current National Health Service abdominal aortic aneurysm screening programme

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QALYs		7370 (5467, 9443)	

Glover et al. *BJS* 2014

Cost effectiveness of AAA Screening

Table 4 Abdominal aortic aneurysm screening model: 30-year

"No further adjustment was made, based on the lack of differences in quality of life of those with an AAA"

Glover et al. *BJS* 2014

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QoL effects of AAA Screening

Men undergoing surgery, compared with those undergoing surveillance had, in the short term, poorer scores on the SF-36 mental-health scale, a difference that was no longer present at 12 months. Surgery was, however, associated with better self-rated health 3 months and 12 months after surgery, similar to the ratings made by those screening negative. These results indicate a similar pattern of findings to those reported in other studies of the effect of screening for aneurysms on quality of life. ***They are also in agreement with the results of a systematic review of the adverse effects of screening, which shows that, 4 or more weeks after screening, adverse emotional effects are not apparent.***

MASS Study Group, Lancet 2002

Cost effectiveness of AAA Screening

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Cost effectiveness of AAA Screening

Cost	QALY	ICER
£7,370	1	£7,370
£47	0.0067	£7,370

Cost effectiveness of AAA Screening

Cost	QALY	ICER	NHB (QALY)
£7,370	1	£7,370	0.63
£47	0.0067	£7,370	0.0044

Cost effectiveness of AAA Screening

Table 4. Comparing the change in utility between adjacent health states

	EQ-5D-5L value set			Crosswalk value set			EQ-5D-3L value set		
EQ-5D-5L state	Value	Difference	Difference matched	Value	Difference	Difference matched	EQ-5D-3L state	Value	Difference
11111	1.000			1.000			**11111**	1.000	
21111	0.951	0.049		0.877	0.123				
31111	0.939	0.012	0.061	0.850	0.027	0.150	**21111**	0.850	0.150
41111	0.795	0.144		0.813	0.037				
51111	0.734	0.061	0.205	0.336	0.477	0.514	**31111**	0.336	0.514
11111	1.000			1.000			**11111**	1.000	
12111	0.945	0.055		0.846	0.154				
13111	0.926	0.019	0.074	0.815	0.031	0.185	**12111**	0.815	0.185
14111	0.825	0.101		0.723	0.092				
15111	0.790	0.035	0.136	0.436	0.287	0.379	**13111**	0.436	0.379
11111	1.000			1.000			**11111**	1.000	
11211	0.951	0.049		0.906	0.094				
11311	0.935	0.016	0.065	0.883	0.023	0.117	**11211**	0.883	0.117
11411	0.832	0.103		0.776	0.107				
11511	0.816	0.016	0.119	0.556	0.220	0.327	**11311**	0.556	0.327
11111	1.000			1.000			**11111**	1.000	
11121	0.942	0.058		0.837	0.163				
11131	0.927	0.015	0.073	0.796	0.041	0.204	**11121**	0.796	0.204
11141	0.733	0.194		0.584	0.212				
11151	0.670	0.063	0.257	0.264	0.320	0.532	**11131**	0.264	0.532
11111	1.000			1.000			**11111**	1.000	
11112	0.924	0.076		0.879	0.121				
11113	0.899	0.025	0.101	0.848	0.031	0.152	**11112**	0.848	0.152
11114	0.714	0.185		0.635	0.213				
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Cost effectiveness of AAA Screening

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Cost effectiveness of AAA Screening

Cost	QALY	ICER	NHB (QALY)
£7,370	1	£7,370	0.63
£47	0.0067	£7,370	0.0044

Net loss of QALY from 3 weeks of slight anxiety
21/365 x 0.076 = 0.0044 QALY

Conclusion

The smallest measurable levels of anxiety (based upon the EQ-5D-5L), associated with screening, would totally negate the benefits of screening in cost-utility terms, if it lasted for 3 weeks or more

Conclusion

The smallest measurable levels of anxiety (based upon the EQ-5D-5L), associated with screening, would totally negate the benefits of screening in cost-utility terms, if it lasted for 3 weeks or more

BUT

- People may have a preference for screening, despite such anxiety
- Does this imply that cost utility analysis is an inappropriate basis for a decision regarding screening?

Electronic Personal Assessment Questionnaires (ePAQ)

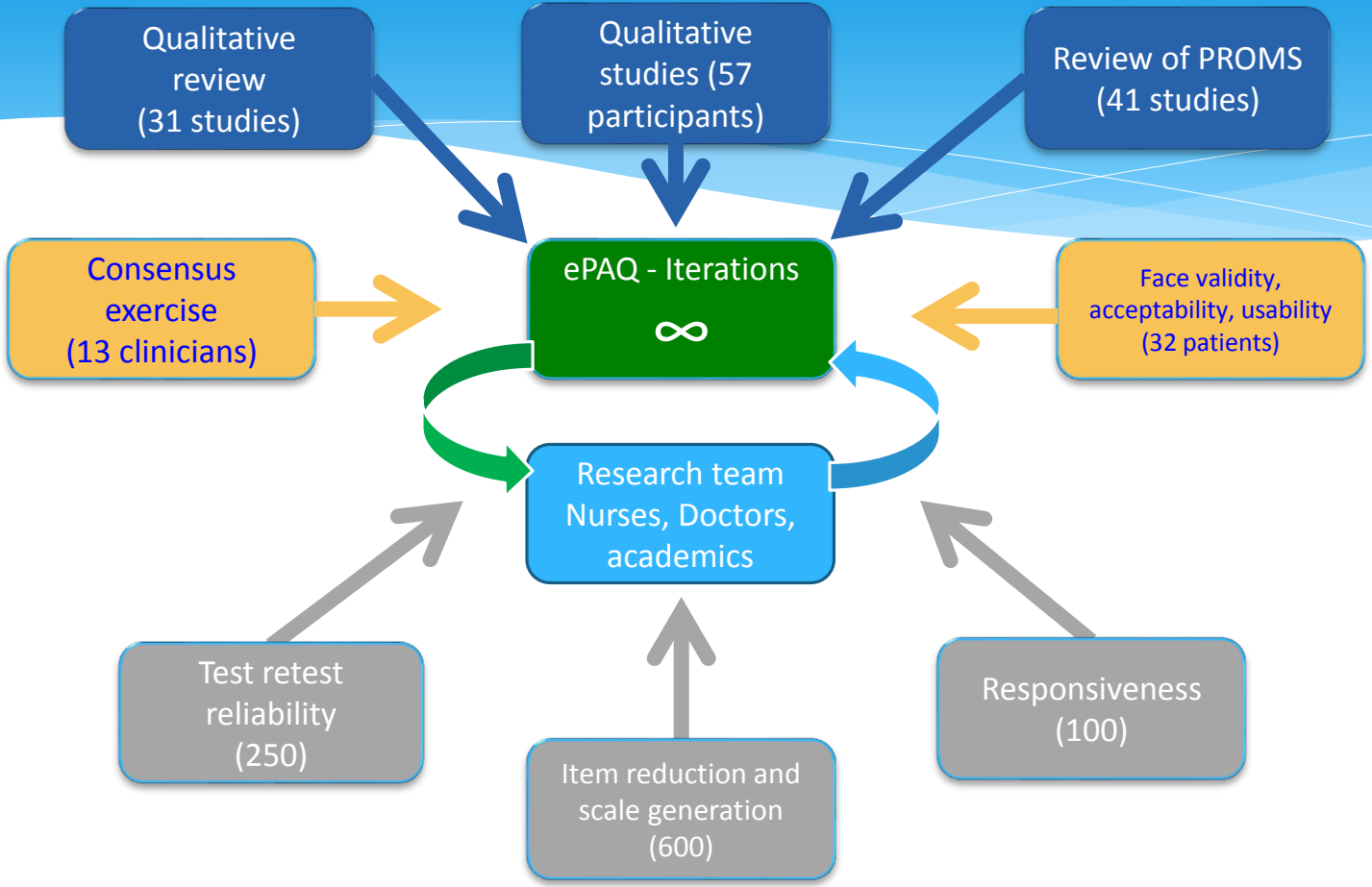
In use:

- **ePAQ Gynaecology**
  - **Pelvic Floor**
  - **Vulva**
  - **Menstrual**
- **ePAQ Pre-operative Assessment**
- **ePAQ Knee**

In development:

- **ePAQ-Vascular**
- **ePAQ-Cardiac**
- **ePAQ Penile Cancer**

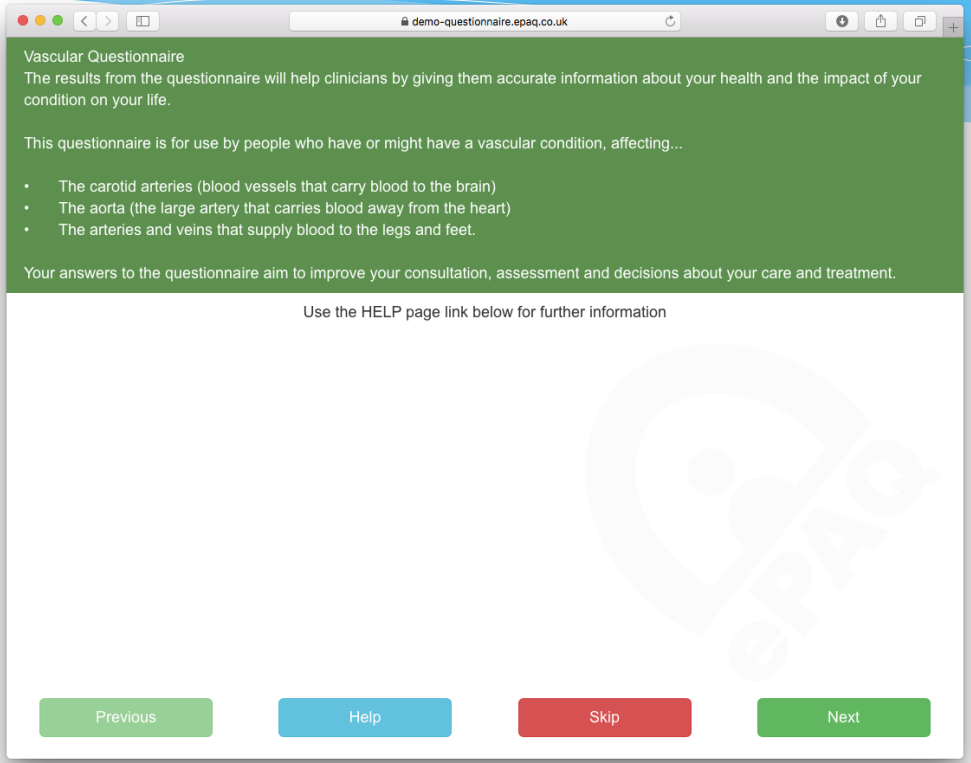
Development of ePAQ-VAS



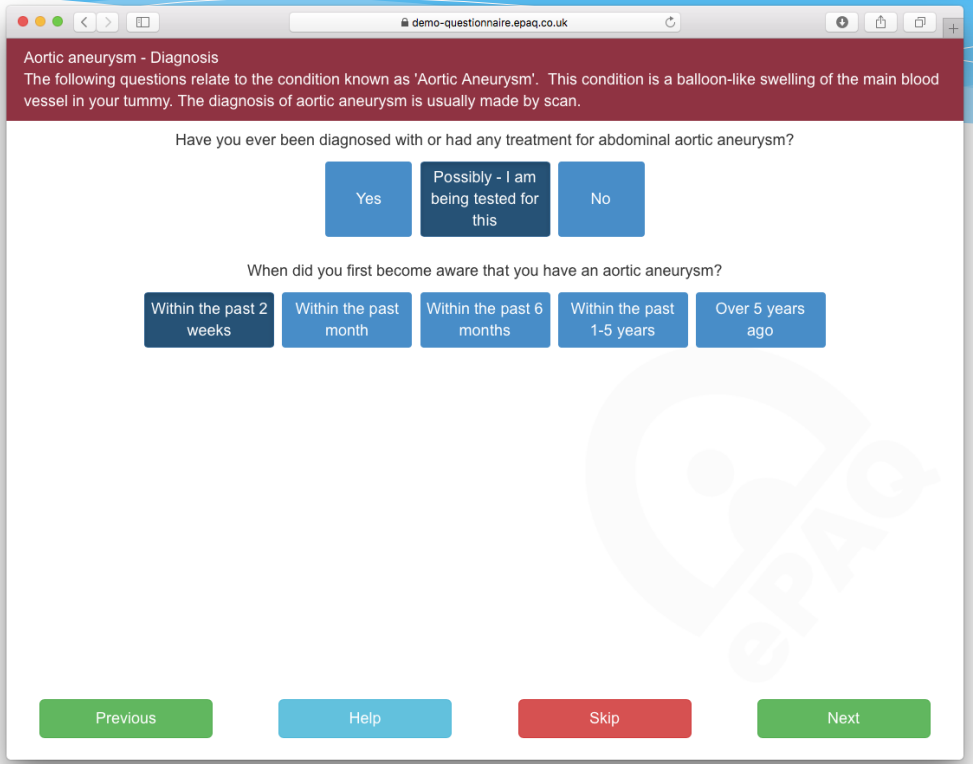
ePAQ-VAS

Summary of structure & content	
Dimensions	**Domains**
Generic	EQ-5D General health (Smoking / Diabetes / BMI / Missing limbs) Pain Sensation Weakness Mobility
Carotid Artery Disease	CNS Vision ADL / QoL
Abdominal Aortic Aneurysm	Symptoms Anxiety ADL / QoL
Limb	Pain Ulceration Varicose veins ADL / QoL
Generic	Goals / Questions / Consent

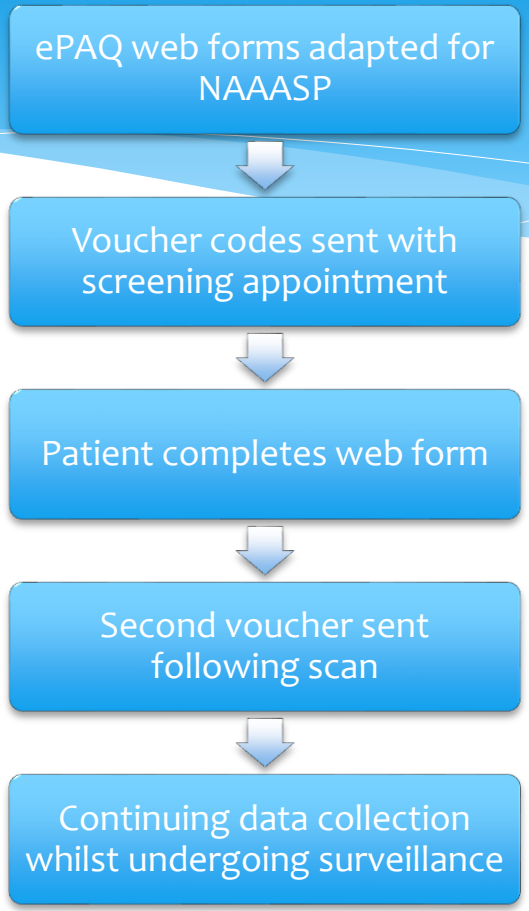
ePAQ-VAS


demo-questionnaire.epaq.co.uk
Vascular Questionnaire
The results from the questionnaire will help clinicians by giving them accurate information about your health and the impact of your condition on your life.
This questionnaire is for use by people who have or might have a vascular condition, affecting...
• The carotid arteries (blood vessels that carry blood to the brain)
• The aorta (the large artery that carries blood away from the heart)
• The arteries and veins that supply blood to the legs and feet.
Your answers to the questionnaire aim to improve your consultation, assessment and decisions about your care and treatment.
Use the HELP page link below for further information
Previous
Help
Skip
Next

ePAQ-VAS


demo-questionnaire.epaq.co.uk
Aortic aneurysm - Diagnosis
The following questions relate to the condition known as 'Aortic Aneurysm'. This condition is a balloon-like swelling of the main blood vessel in your tummy. The diagnosis of aortic aneurysm is usually made by scan.
Have you ever been diagnosed with or had any treatment for abdominal aortic aneurysm?
Yes
Possibly - I am being tested for this
No
When did you first become aware that you have an aortic aneurysm?
Within the past 2 weeks
Within the past month
Within the past 6 months
Within the past 1-5 years
Over 5 years ago
Previous
Help
Skip
Next

Proposed mechanism



What data to collect?

* Generic HRQoL
  - EQ-5D 5L
* Disease specific measures (Anxiety)
  - e.g. STAI or PCQ
* Patient experience
* Potential for other data, demographics, co-morbidity, risk factors
* Potential for data related to add-on studies

What data to collect?

Systematic review

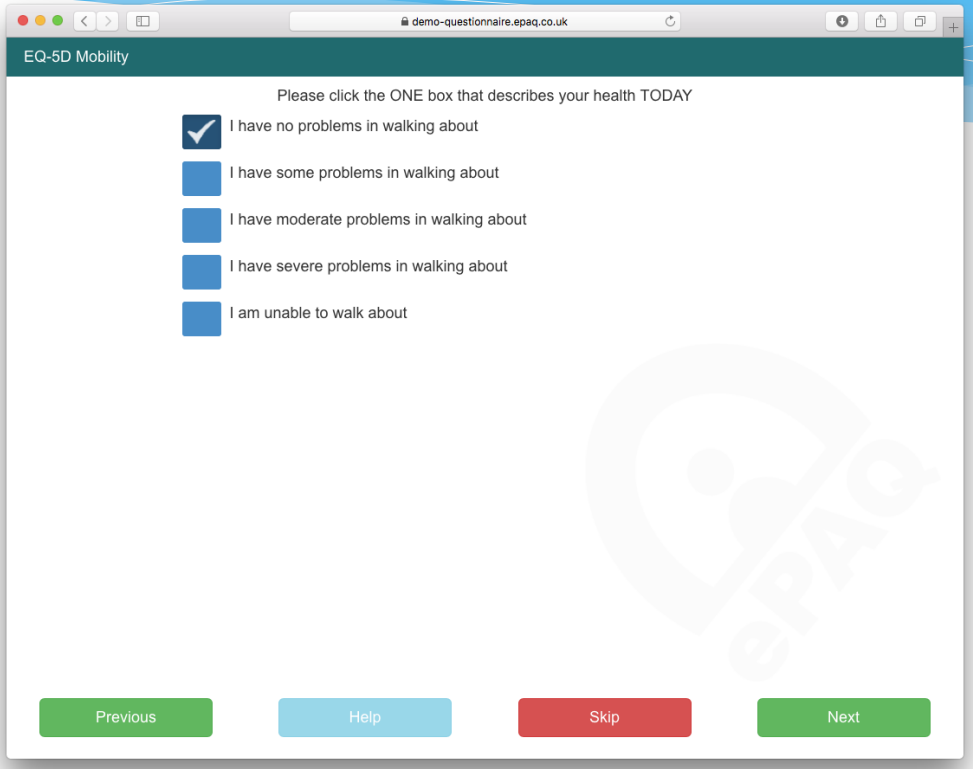
Systematic review and qualitative evidence synthesis of patient-reported outcome measures for abdominal aortic aneurysm

R. Duncan[1], M. Essat[1], G. Jones[2], A. Booth[1], H. Buckley Woods[1], E. Poku[1], E. Kaltenthaler[1], A. D. Keetharuth[1], S. Palfreyman[3] and J. Michaels[1]

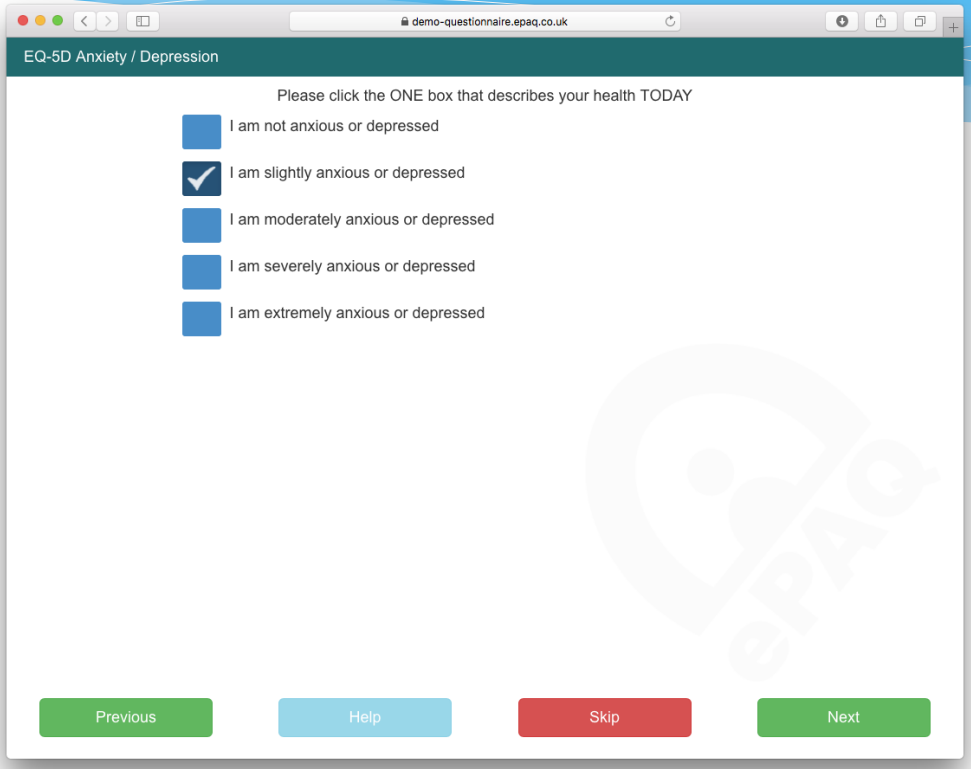
[1]School of Health and Related Research, University of Sheffield, Sheffield, and [2]School of Social Sciences, Leeds Beckett University, Leeds, UK, and [3]Faculty of Nursing, University of Alberta, Edmonton, Alberta, Canada

Correspondence to: Dr M. Essat, School of Health and Related Research, University of Sheffield, Regent Court, 30 Regent Street, Sheffield S1 4DA, UK (e-mail: m.essat@sheffield.ac.uk)

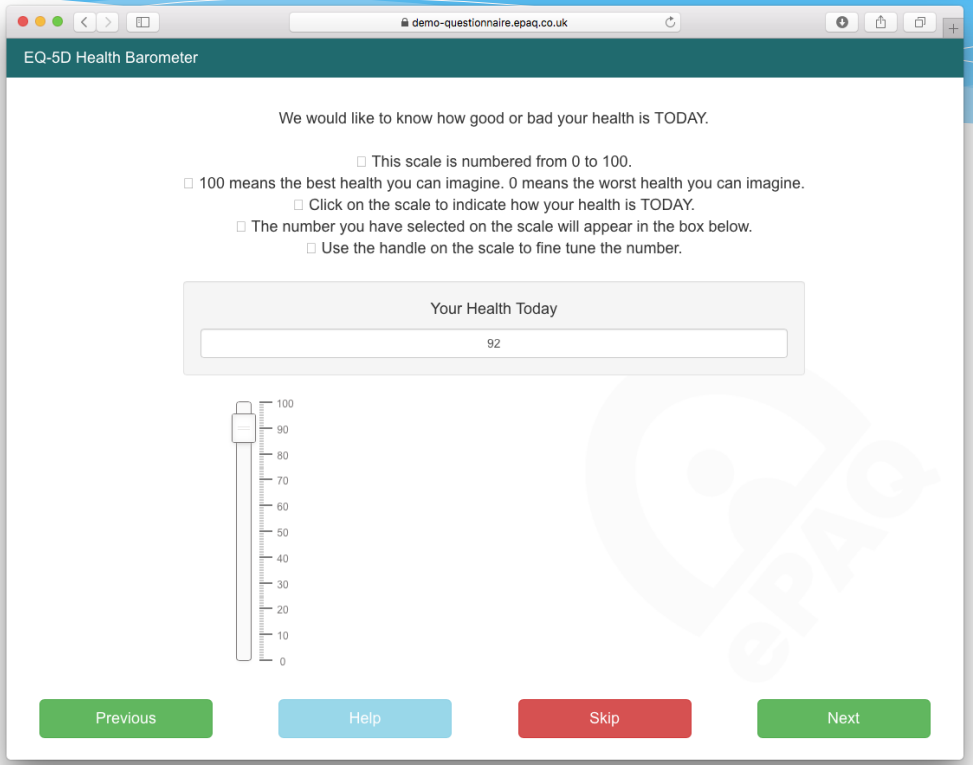
ePAQ-VAS


demo-questionnaire.epaq.co.uk
EQ-5D Mobility
Please click the ONE box that describes your health TODAY
I have no problems in walking about
I have some problems in walking about
I have moderate problems in walking about
I have severe problems in walking about
I am unable to walk about
Previous
Help
Skip
Next

ePAQ-VAS


demo-questionnaire.epaq.co.uk
EQ-5D Anxiety / Depression
Please click the ONE box that describes your health TODAY
I am not anxious or depressed
I am slightly anxious or depressed
I am moderately anxious or depressed
I am severely anxious or depressed
I am extremely anxious or depressed
Previous
Help
Skip
Next

ePAQ-VAS


demo-questionnaire.epaq.co.uk
EQ-5D Health Barometer
We would like to know how good or bad your health is TODAY.
This scale is numbered from 0 to 100.
100 means the best health you can imagine. 0 means the worst health you can imagine.
Click on the scale to indicate how your health is TODAY.
The number you have selected on the scale will appear in the box below.
Use the handle on the scale to fine tune the number.
Your Health Today
92
100
90
80
70
60
50
40
30
20
10
0
Previous
Help
Skip
Next

Systematic Review of anxiety measures for use in AAA screening

* Aim
  - To critically appraise, compare and summarise the quality of anxiety PROMs used in adults undergoing screening…to select an appropriate, valid and reliable tool for use in populations undergoing screening for AAA

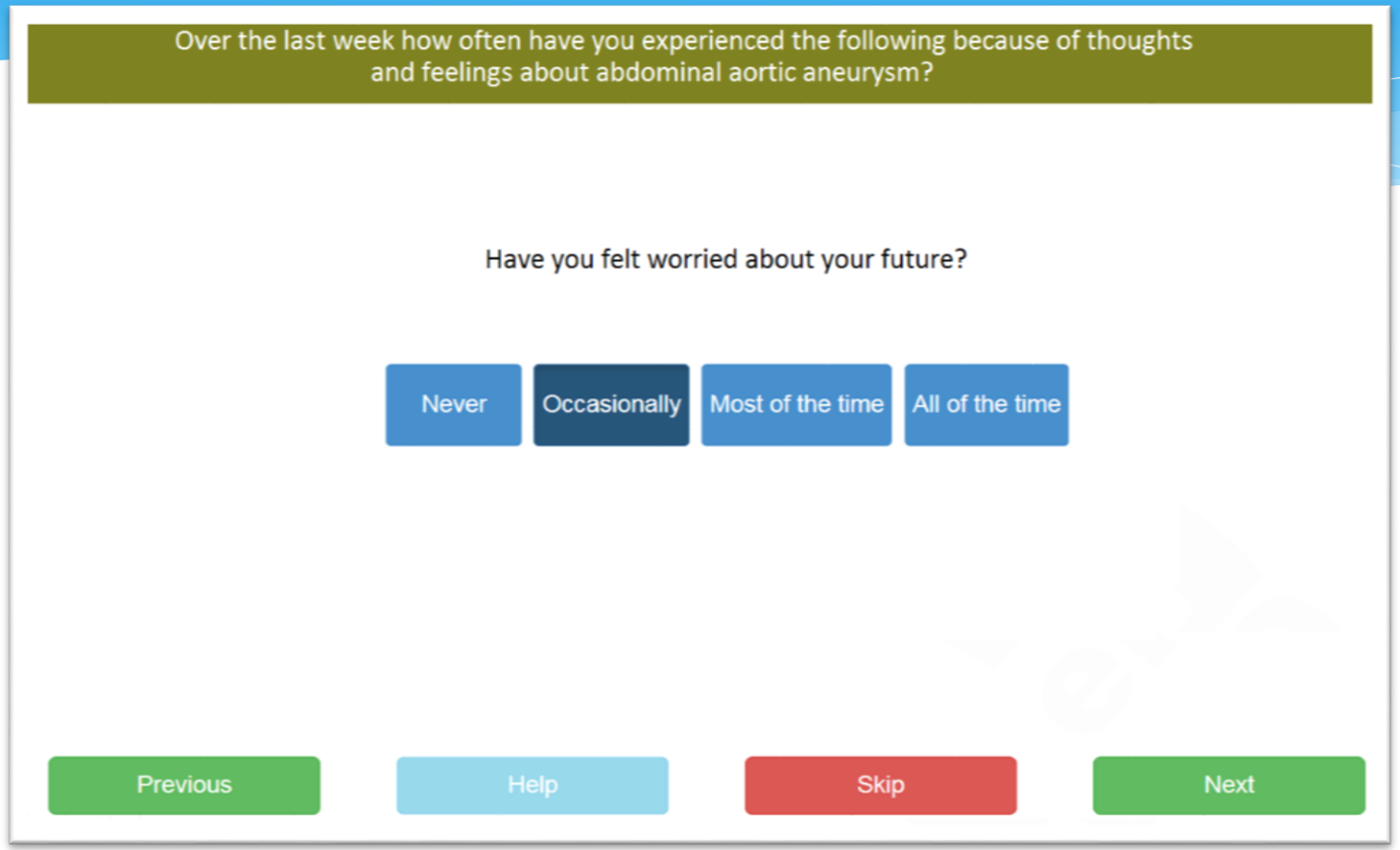
Inclusion Criteria	Exclusion Criteria
Studies of adults aged 18+	
worldwide	
Attending or offered screening that is related to potentially progressive conditions that could require repeat screening/ surveillance.	Screening that identifies conditions that are binary and amenable to single treatments (for instance infectious disease where positive screening = diagnosis and effective treatment) or conditions that are progressive and unresponsive to treatment (for instance genetic conditions such as Huntingdon's Chorea)
Population screening/ surveillance	Selective screening, for instance, related to genetics, familial issues, infectious disease
Studies reporting development or validation of the measurement properties of anxiety PROMs	Studies that only use the PROMs as an outcome measure, for instance in an RCT or observational study
Full text articles published in peer reviewed journals	Abstracts, conference proceedings, dissertations
Studies of English language PROMs, including PROMs that have been translated into English and undergone validation of the measurement properties in that form.	Non-English PROMs
Foreign language papers that appear to report on the development or validation of English language PROMs will recorded for transparency but will not be included as papers in the review.	

Psychological Consequences of Screening

Over the last week how often have you experienced the following because of thoughts and feelings about breast cancer:

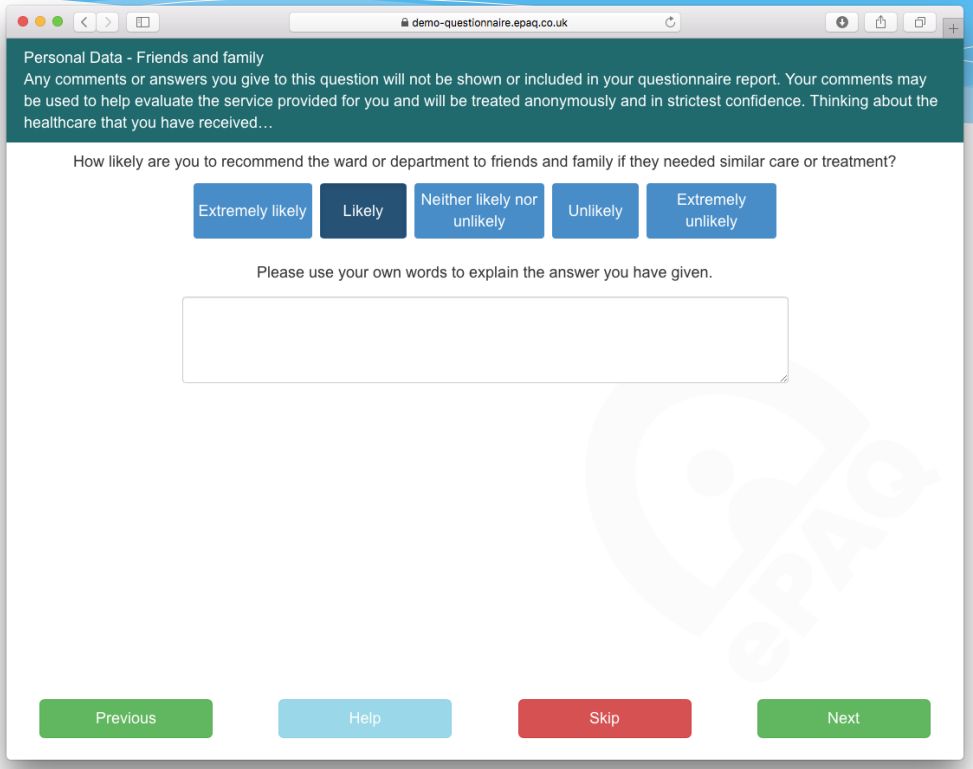
	Not at all	*Rarely*	*Some of the time*	*Quite a lot of the time*
(P) had trouble sleeping	0	1	2	3
(P) experienced a change in appetite	0	1	2	3
(E) been unhappy or depressed	0	1	2	3
(E) been scared and panicky	0	1	2	3
(E) felt nervous or strung up	0	1	2	3
(E) felt under strain	0	1	2	3
(S) found you have been keeping things from those who are close to you	0	1	2	3
(S) found yourself taking things out on other people	0	1	2	3
(S) found yourself noticeably withdrawing from those who are close to you	0	1	2	3
(P) had difficulty doing things around the house which you normally do	0	1	2	3
(P) had difficulty meeting work or other commitments	0	1	2	3
(E) felt worried about your future	0	1	2	3

ePAQ-Psychological Consequences Questionnaire (PCQ)



Patient experience

ePAQ-VAS


demo-questionnaire.epaq.co.uk
Personal Data - Friends and family
Any comments or answers you give to this question will not be shown or included in your questionnaire report. Your comments may be used to help evaluate the service provided for you and will be treated anonymously and in strictest confidence. Thinking about the healthcare that you have received…
How likely are you to recommend the ward or department to friends and family if they needed similar care or treatment?
Extremely likely
Likely
Neither likely nor unlikely
Unlikely
Extremely unlikely
Please use your own words to explain the answer you have given.
Previous
Help
Skip
Next

Patient experience

D9 (of 10 questions)
Comments on service
Any comments or answers you give to this question will not be shown or included in your questionnaire report. Your comments may be used to help evaluate the service provided for you and will be treated anonymously and in strictest confidence. Thinking about the healthcare that you have received. Would you like to make any comments or suggestions?

Please use the box below to make comments (positive or negative, critical or constructive) about any aspect of the care that you are receiving or have received for your condition

Previous | Help | Skip | Next

Questions

1. Does screening or surveillance have an effect on HRQoL?
2. If so, how big is this effect?
3. Does this affect the balance of risks and benefits of screening?
4. Are there factors other than cost-utility calculations that should be taken into account in screening policy?

Public Health England

Protecting and improving the nation's health

NHS Abdominal Aortic Aneurysm Screening Programme National Research Day 2019

Newcastle

7 February

Are we effective at reducing cardiovascular risk factors in AAA surveillance?

Salma Babikir, Teaching Fellow, Freeman Hospital, Newcastle

Gateshead Health NHS Foundation Trust

The Newcastle upon Tyne Hospitals NHS Foundation Trust

AAA Cardiovascular Risk Factors Audit

Salma Babikir, Lesley Wilson, Jeanne Boynton, Tracy Gilchrist, Gerry Stansby

NE and North Cumbria AAA screening

Introduction

- The purpose of the NHS Abdominal Aortic Aneurysm Screening Programme (NAAASP) is to monitor and treat aortic aneurysms by early detection ultimately to decrease mortality.

- Higher risk of an aortic aneurysm and other CV deaths in smokers, high cholesterol, high blood pressure and have a family history of aneurysms.

Men entitled to surveillance scan should be advised as appropriate for smoking cessation, diet and exercise activities.

(NHS public health functions agreement 2018- 19)

- North East and North Cumbria (NENC) AAASP at Gateshead covers a large area with a population of 3.1million; considerable effort for the screening and the surveillance interview, most is by telephone interview.

- Abdominal Aortic Aneurysm Screening Programme Nurse Specialist Best Practice Guidelines (Feb 2016) has had emphasised face to face consultation with the nurse specialist within 12 weeks of their initial scan.

Assessment should include

- blood pressure

- medication status (including statins and antiplatelet therapy)

- smoking status

- body mass index

- current diet, exercise, and alcohol consumption if appropriate

- familial history of AAA

Resources

- SMaRT (The Screening Measurement and Referral Tracker) by (Northgate Public Services Limited).

- Patient record system.

Methods

- A retrospective review was performed on 113 men at the age of 65, first scanned for AAA from the period between July 2016 to June 2017. Risk factors advises were given on their first interview, and we audited their status at 12 months.

- Patients excluded:

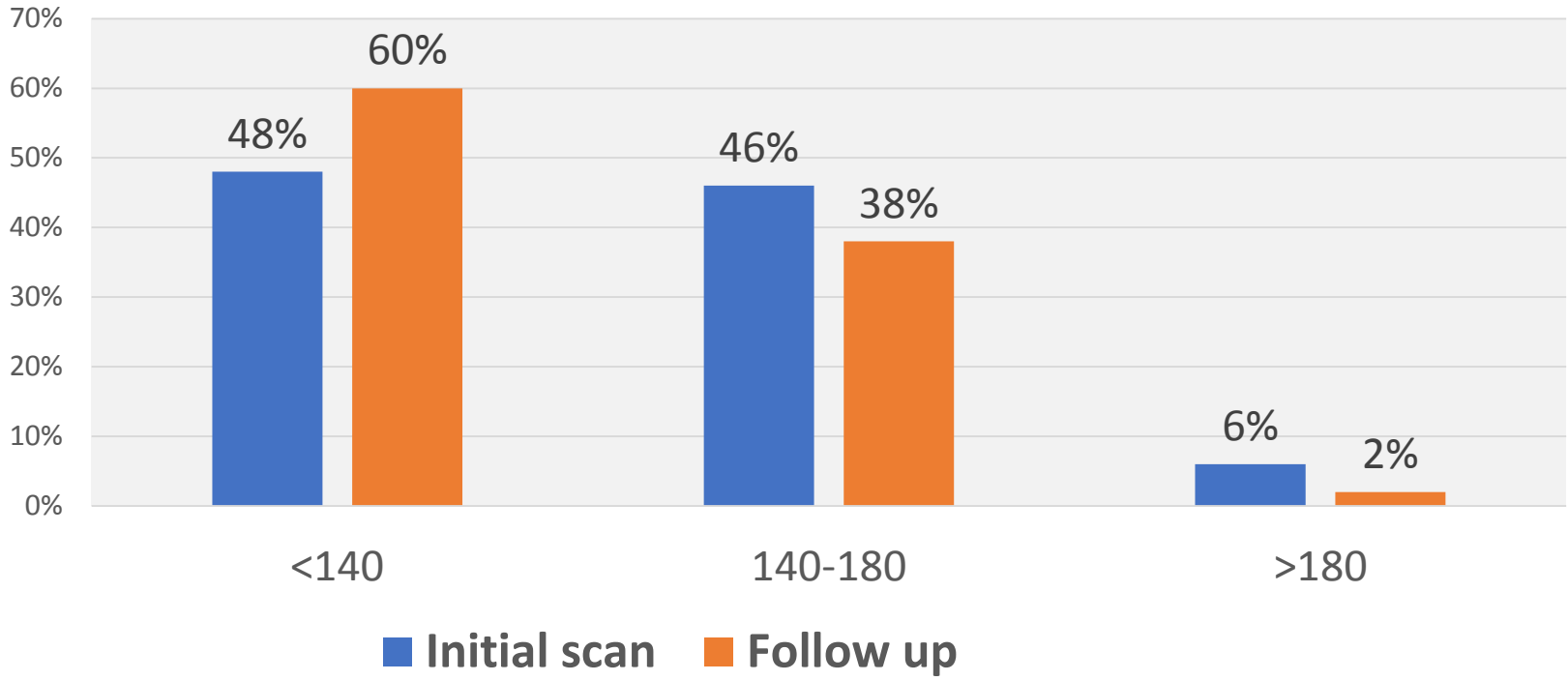
  3 patient DNA the interview following their screening scan

  5 patients DNA the surveillance scan

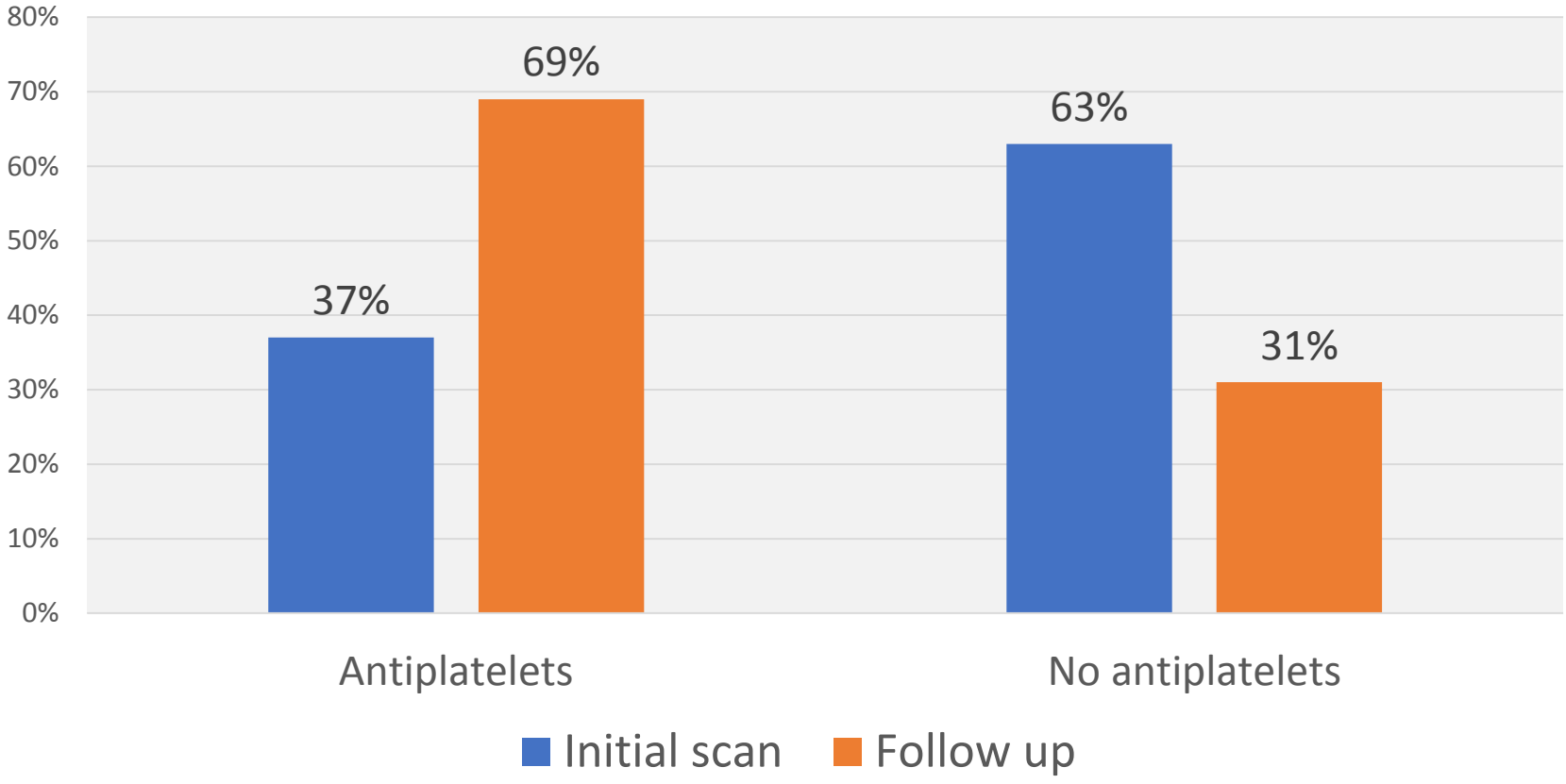
- Factors audited included blood pressure, antiplatelet, statin, smoking, diet and exercise advise, BMI and IMD.

Results

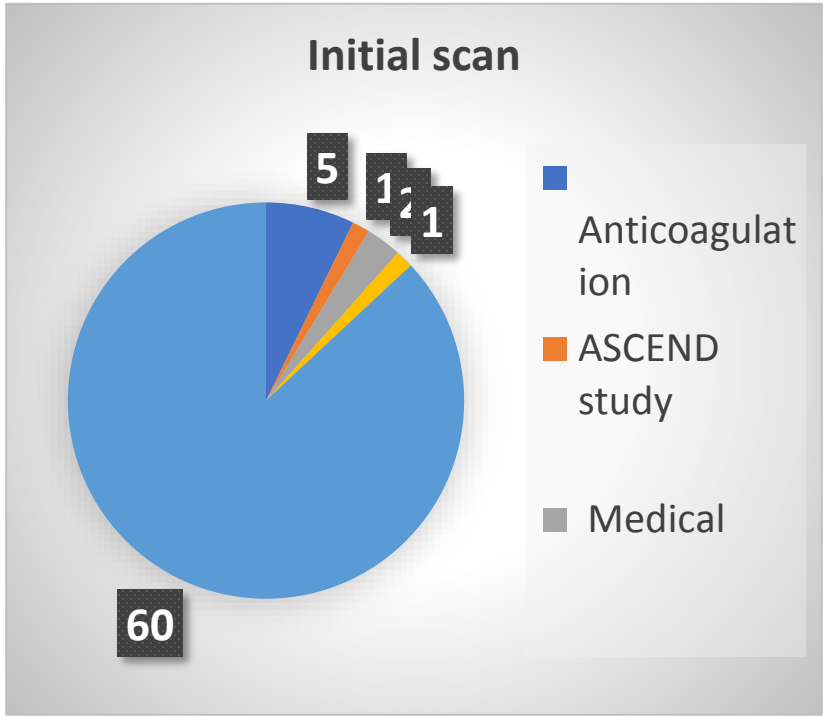
Blood Pressure

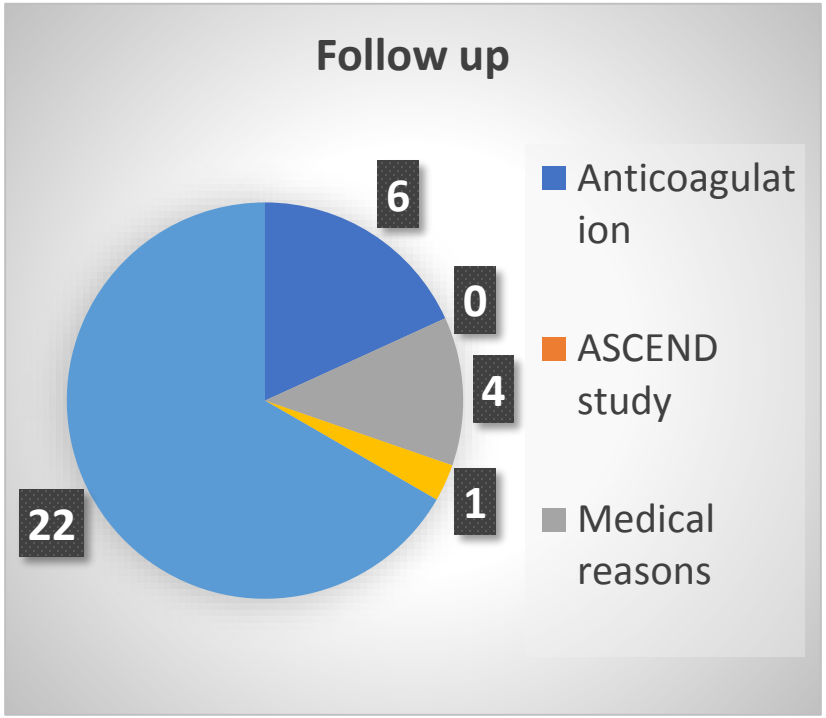


Antiplatelet

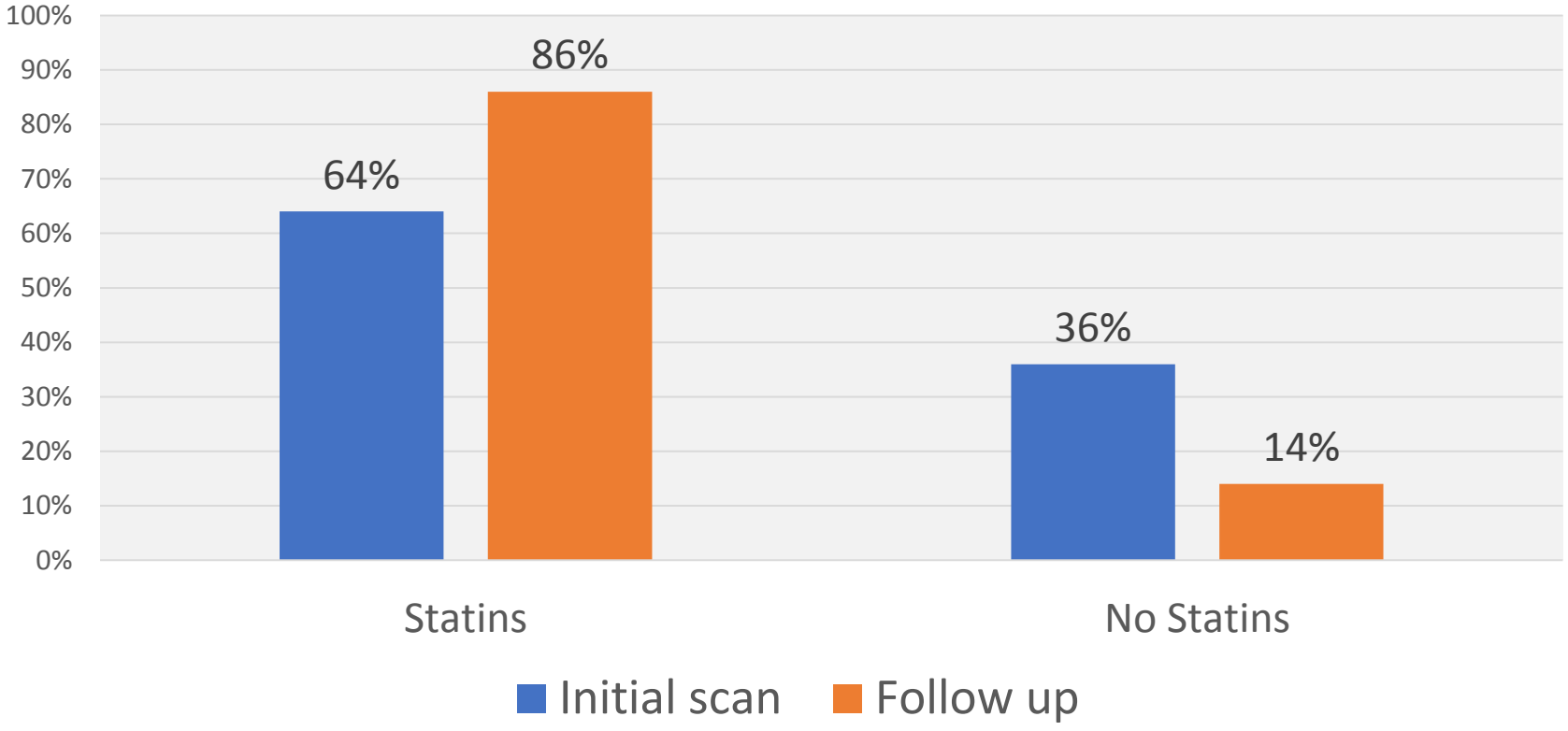


No Antiplatelet

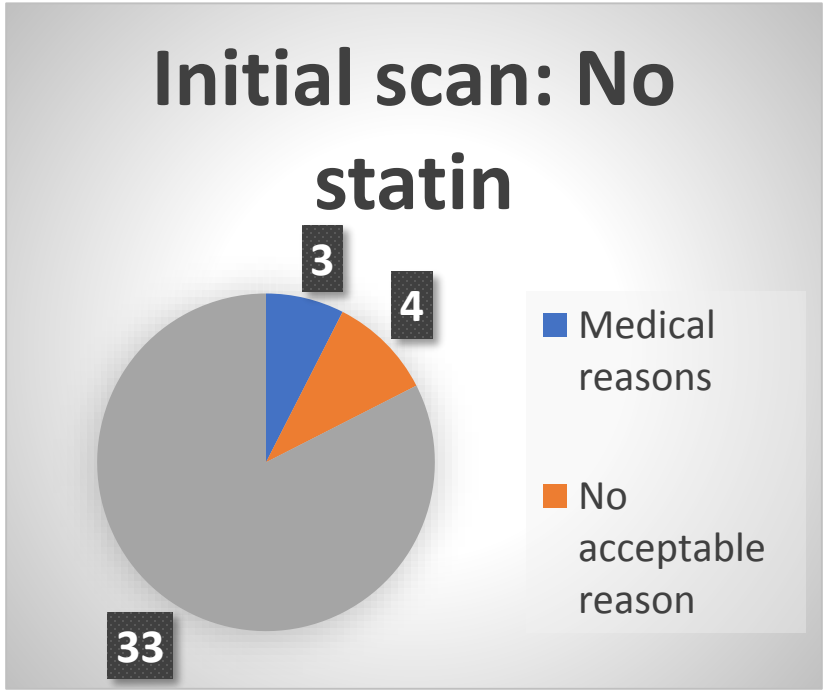


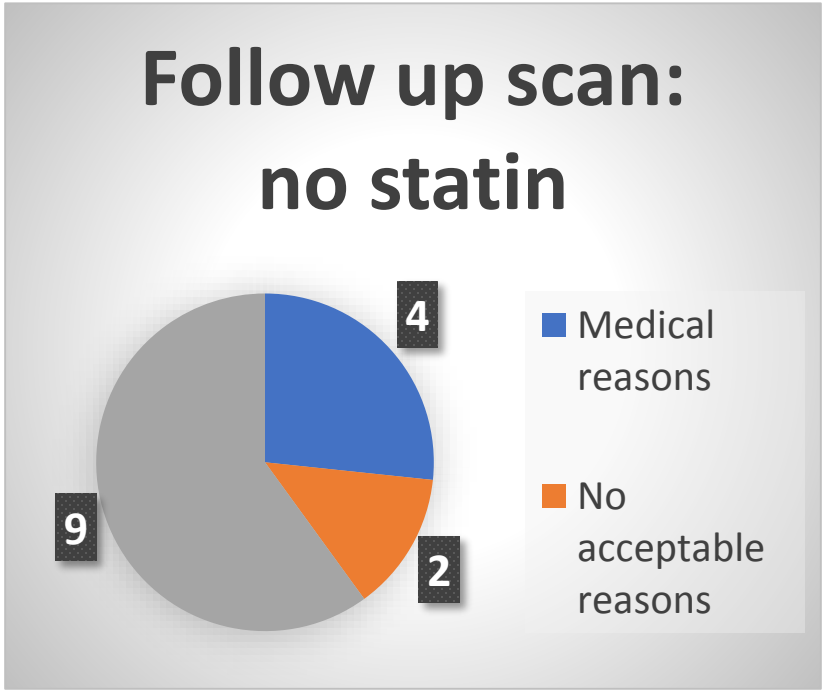


Statins

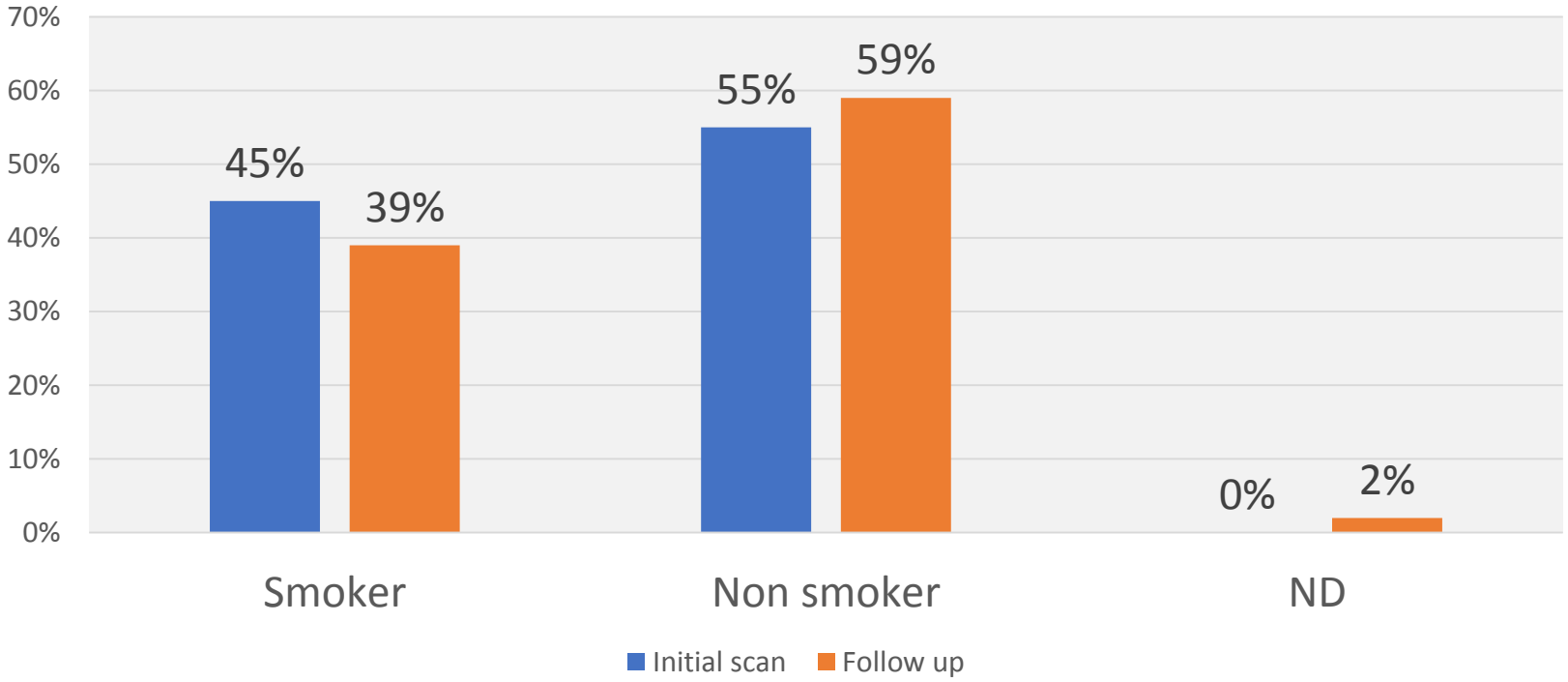

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
64%
86%
36%
14%
Statins
No Statins
Initial scan
Follow up

No statins

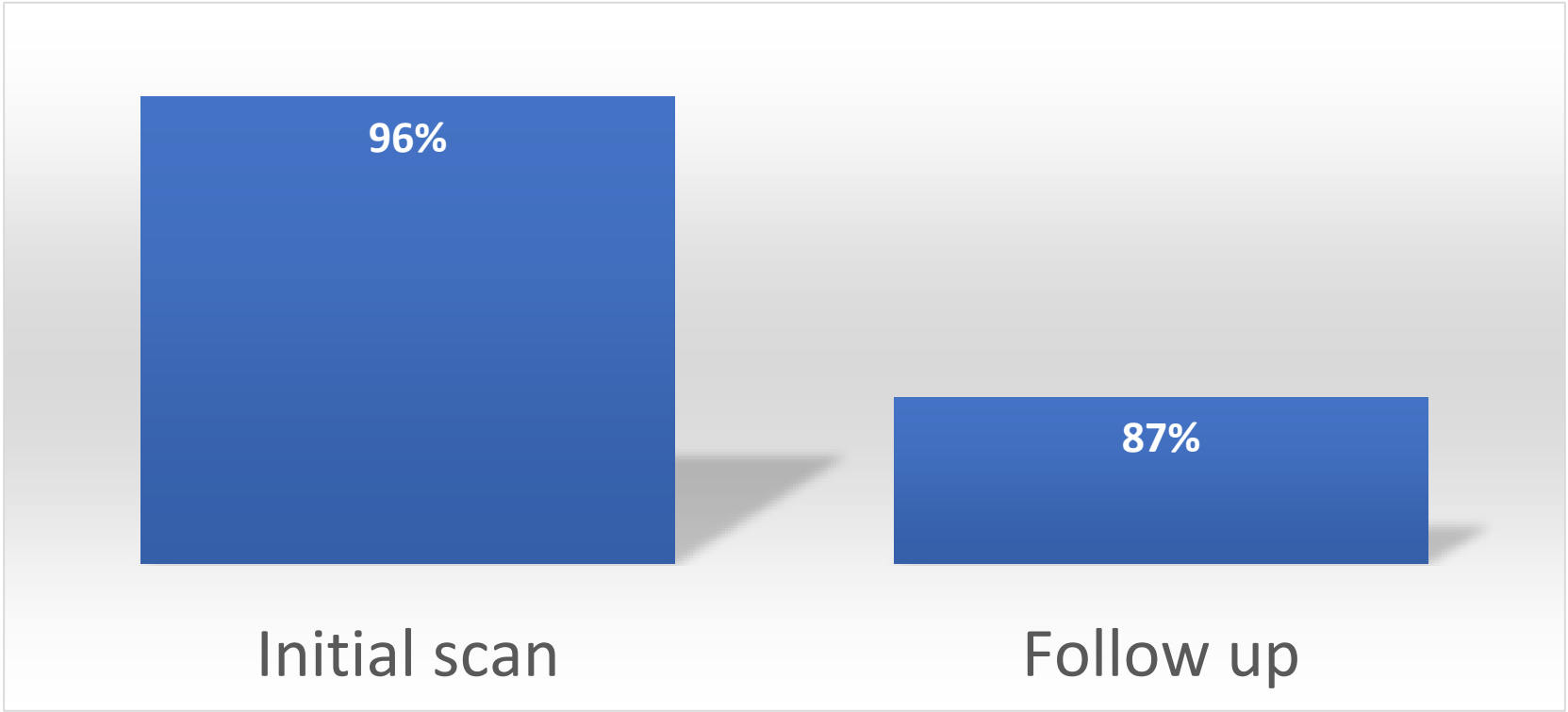

Initial scan: No statin
3
4
33
Medical reasons
No acceptable reason


Follow up scan: no statin
4
9
2
Medical reasons
No acceptable reasons

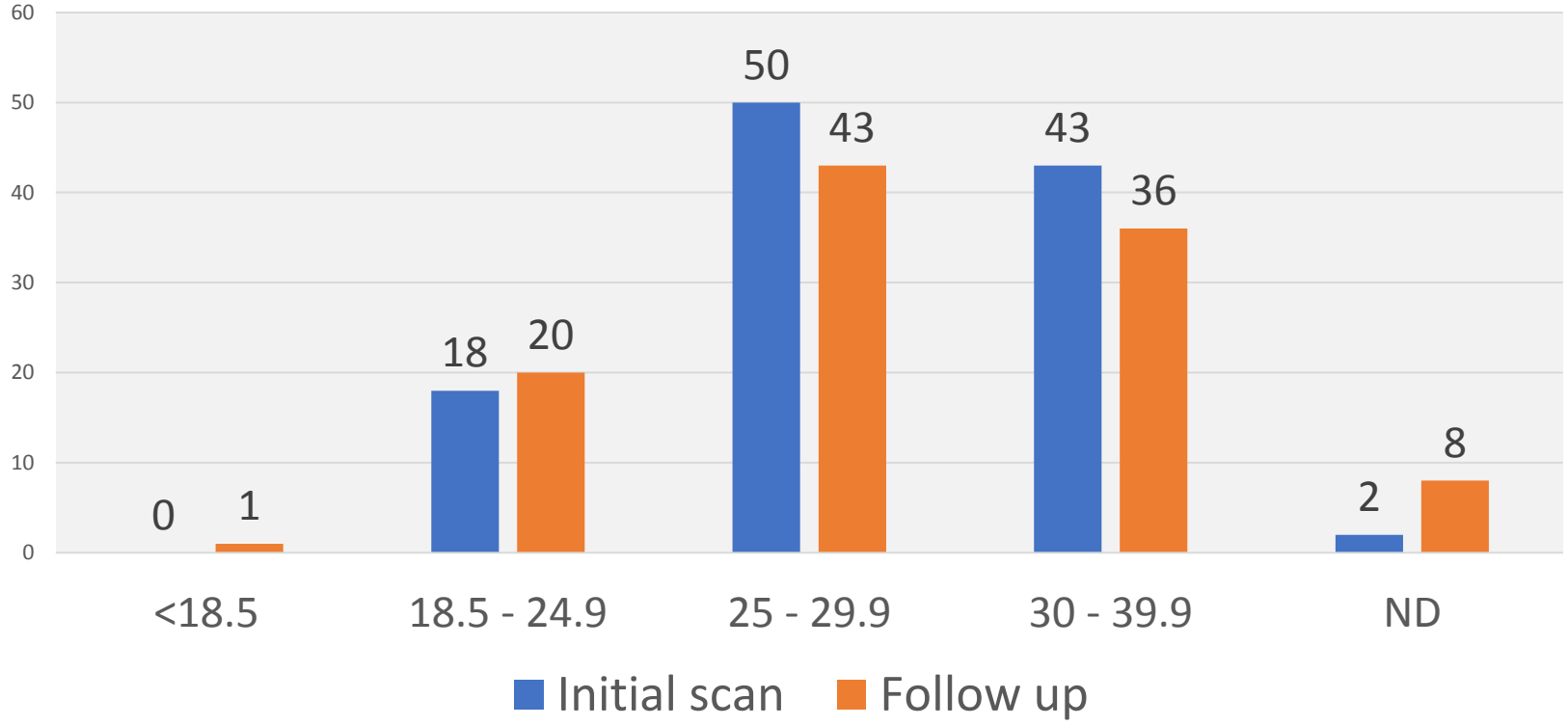
Smoking


70%
60%
50%
40%
30%
20%
10%
0%
45%
39%
55%
59%
0%
2%
Smoker
Non smoker
ND
Initial scan
Follow up

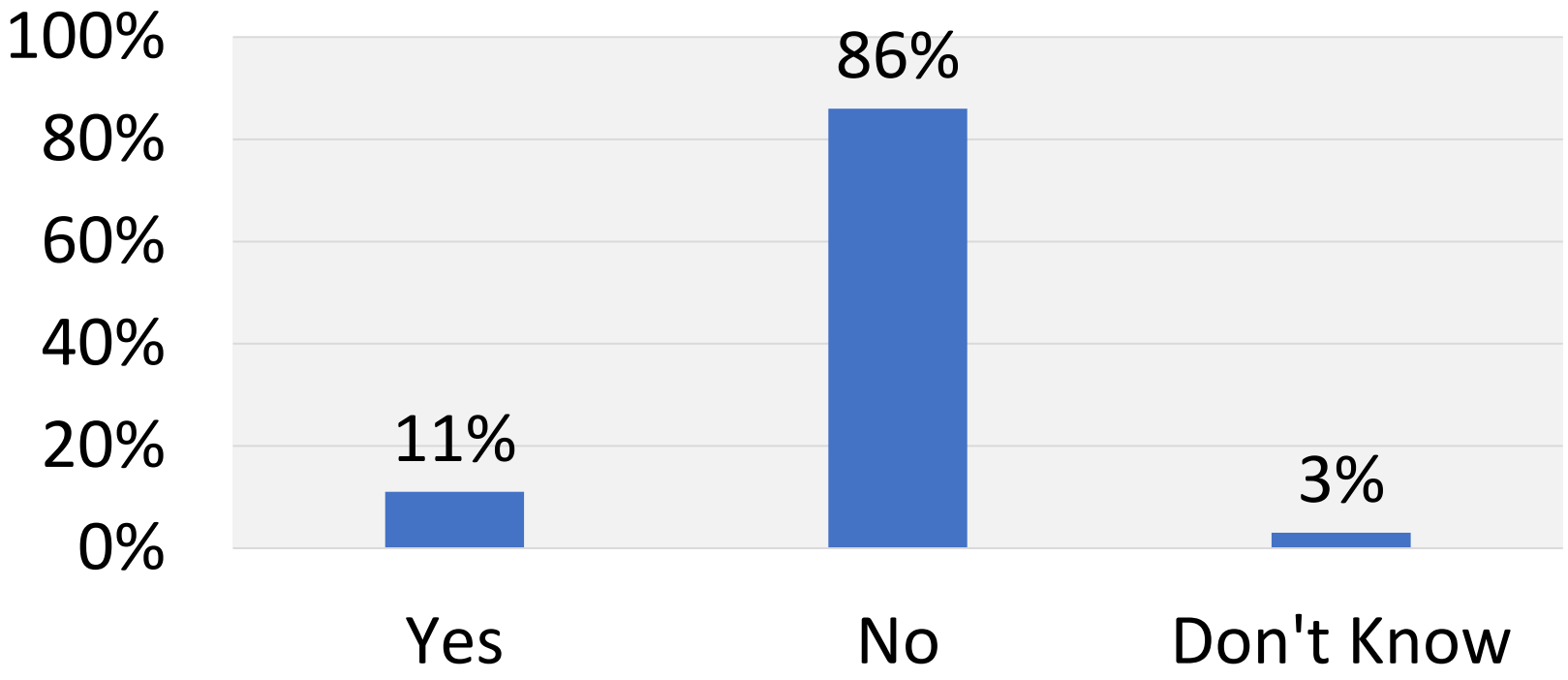
Smoking cessation advice



BMI


60
50
40
30
20
10
0
0
1
18
20
50
43
43
36
2
8
<18.5
18.5 - 24.9
25 - 29.9
30 - 39.9
ND
Initial scan
Follow up

Family History of AAA



Index of Multiple Deprivation Decile

- IMD 2015 is the official measure of relative deprivation for small areas in England.
- It ranks every small area in England from 1 (most deprived area) to 32,844 (least deprived area).

Men did not attend the consultation were from area rank: 2, 6 & 7.

(Deciles: 4683, 16598 & 21720)

Men did not attend the surveillance scan were found from area rank: 1, 2, 4 & 8

Deciles: 1569, 3803, 11301, 23928 & 23869

Lifestyle advice

- Diet and weight advice were given to 64 % at the initial interview.
- Exercise advice was given to 63 %
- 27 % only were given exercise advice on the follow up scan.

Conclusion

Overall improvements shown

Excellent documentation at the initial screening on Medications and smoking status.

More room for improvement, esp.

- Smoking
- Diet and exercise

Recommendations

- Include diet, physical activity need documentation on surveillance scan as per NAAASP recommendation.
- Consultation follow ups by telephone following the surveillance scan.
- Additional nurse sessions/ group sessions?
- Better integration with other services?

References

- Service specification No.23 NHS Abdominal Aortic Aneurysm Screening Programme NAAASP)

https://www.england.nhs.uk/wp-content/uploads/2017/04/Gateway-ref-07844-180913-Service-specification-No.-23-NHS-Abdominal-Aortic-Aneurysm-screening-programme.pdf

- Abdominal Aortic Aneurysm Screening Programme Nurse Specialist Best Practice Guidelines (Feb 2016)

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/501234/NAAASP_nurse_practice_guidance_Feb_2016.pdf

- English indices of deprivation 2015
- https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/464430/English_Index_of_Multiple_Deprivation_2015_-_Guidance.pdf

http://imd-by-postcode.opendatacommunities.org

- Jordan H, Roderick P, Martin D. The Index of Multiple Deprivation 2000 and accessibility effects on health. *Journal of Epidemiology & Community Health* 2004;**58:**250-257. https://jech.bmj.com/content/58/3/250

Public Health England

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NHS Abdominal Aortic Aneurysm Screening Programme National Research Day 2019

Newcastle

7 February

AAA screening: how to involve vascular surgical trainees in research and audit

Sandip Nandhra, Academic Clinical Lecturer, Northern Vascular Unit, Freeman Hospital, Newcastle

The Newcastle upon Tyne Hospitals NHS
NHS Foundation Trust

VERN
Vascular and Endovascular Research Network

AAA Screening; How to involve vascular trainees in research and audit

Mr Sandip Nandhra

NIHR Academic Clinical Lecturer

ST7 Vascular Registrar

Freeman Hospital

Newcastle

Royal College of Surgeons
ADVANCING SURGICAL CARE

Why?

Why?

- Who and what are vascular trainees?
- Is anyone outside this room interested in NAAASP research and audit?
- What can trainees do for you/NAAASP?
- Join us…

Who?

Vascular Surgery Curriculum

August 2014
Including Simulation
(Updated 2015 and 2016)

ISCP INTERCOLLEGIATE SURGICAL CURRICULUM PROGRAMME

- ST3 – ST8 designated vascular training curriculum since 2013.
  - Management of aortic aneurysms
  - Requirement - audit and research activity.

Vascular Surgery Curriculum

August 2014
Including Simulation
(Updated 2015 and 2016)

ISCP INTERCOLLEGIATE SURGICAL CURRICULUM PROGRAMME

Who?

- ST3 – ST8 designated vascular training curriculum since 2013.
  - Management of aortic aneurysms
  - Requirement - audit and research activity.
- Training delivered in vascular centres across the UK.
- Annual training and ‘networking’ events
  - Rouleaux Club ASPIRE courses, VSGBI, BSET, CX, ESVS etc.
- Small year groups between 11 – 23 per year.
  - Names to faces.
- Tomorrows consultants

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ARTICLE

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Safety of Men with Small and Medium Abdominal Aortic Aneurysms Under Surveillance in the National Health Service Screening Programme

Clare Oliver-Williams, Michael Sweeting, Jo Jacomelli, Lisa Summers, Anne Stevenson, Tim Lees, and Jonothan J. Earnshaw

Originally published 14 Jan 2019 | https://doi.org/10.1161/CIRCULATIONAHA.118.036966 | Circulation. 2019;0

Outcome of the Swedish Nationwide Abdominal Aortic Aneurysm Screening Program

Anders Wanhainen, Rebecka Hultgren, Anneli Linné, Jan Holst, Anders Gottsäter, Marcus Langenskiöld, Kristian Smidfelt, Martin Björck, Sverker Svensjö, and On behalf of the Swedish Aneurysm Screening Study Group (SASS), Linda Lyttkens, Ewa Pihl, Tomas Wetterling, Per Kjellin, Ken Eliasson, Erik Wellander, Azin Narbani, Elisabet Skagius, Alexandra Hollsten, ... Show all Authors

Originally published 14 Sep 2016 | https://doi.org/10.1161/CIRCULATIONAHA.116.022305 | Circulation. 2016;134:1141–1148

Other version(s) of this article

Is anyone interested?

BJR
AN INTERNATIONAL JOURNAL OF RADIOLOGY, RADIATION ONCOLOGY AND ALL RELATED SCIENCES

Br J Radiol. 2018 Oct;91(1090):20170306. doi: 10.1259/bjr.20170306. Epub 2018 Apr 5.

Ultrasound screening for abdominal aortic aneurysm: current practice, challenges and controversies.

Benson RA[1,2], Meecham L[3], Fisher O[1], Loftus IM[4].

ELSEVIER

Journal of Vascular Surgery
Volume 63, Issue 2, February 2016, Pages 301-304

Clinical research study

From the Society for Vascular Surgery

Screening results from a large United Kingdom abdominal aortic aneurysm screening center in the context of optimizing United Kingdom National Abdominal Aortic Aneurysm Screening Programme protocols

Presented in a rapid-fire session at the 2015 Vascular Annual Meeting of the Society for Vascular Surgery, Chicago, Ill, June 20, 2015, and at the Aortic Aneurysm session at the 2015 Charing Cross Advances in Vascular Technology conference, London, United Kingdom, April 28, 2015.

Ruth A. Benson BSc, MBChB, MD, Rebecca Poole BMBch, BA, Shelagh Murray, Paul Moxey BSc, MD, Ian M. Loftus BSc, MD

WILEY THE BRITISH JOURNAL OF SURGERY

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Br J Surg. 2018 Feb; 105(3): 203–208.
Published online 2018 Feb 5. doi: 10.1002/bjs.10721
PMCID: PMC5817237
PMID: 29405273

Impact of abdominal aortic aneurysm screening on quality of life

M. F. Bath,[1] D. Sidloff,[1] A. Saratzis,[1] M. J. Bown,[1] and the UK Aneurysm Growth Study investigators

Author information · Article notes · Copyright and License information Disclaimer

Is anyone interested in trainee led screening research?

Vascular and Endovascular Research Network

Eur J Vasc Endovasc Surg (2017) 54, 116–122

Multi-Centre Study on Cardiovascular Risk Management on Patients Undergoing AAA Surveillance

A. Saratzis [a,b], N. Dattani [b], A. Brown [b], J. Shalhoub [b], D. Bosanquet [b], D. Sidloff [a,b,*], P. Stather [b], on behalf of The Vascular and Endovascular Research Network (VERN)

[a] Department of Cardiovascular Sciences, NIHR Leicester Cardiovascular Biomedical Research Unit, University of Leicester, Leicester, UK
[b] The Vascular and Endovascular Research Network, UK

WHAT THIS PAPER ADDS

This study suggests that many patients with small abdominal aortic aneurysms are not prescribed an antiplatelet or statin and continue to smoke cigarettes and therefore remain at high risk of cardiovascular morbidity and mortality.

Delphi Consensus

- Vascular surgeons, Vascular Nurses and Vascular technologists/scientists
- Issues within Aortic disease
  - Natural history and understanding growth of AAA
  - Those turned down for intervention

Large numbers

Headline figures	2009/10 to date	2016/17	2017/18	Q2 2018/19
No. of men eligible for screening	1,897,739	282,357	285,693	294,481
No. of men offered screening	1,872,168	281,965	284,116	196,103
No. of men screened	1,484,145	228,563	229,956	129,963
No. of men with aorta ≥3.0cm	18,169	2,473	2,323	1,265
Uptake (percentage)	79.3	81.1	80.9	66.3
Aneurysms detected (percentage)	1.22	1.08	1.01	0.97
Referred for surgery	4,461	789	809	351

Perfect combination?

Trainees

Drive, motivation, mandatory requirements

Networked nationally

Interest

Within the entire vascular community

Data

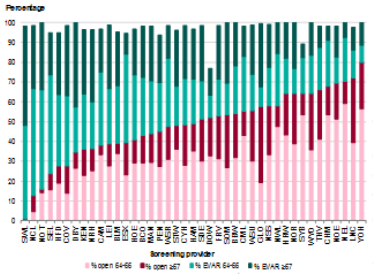
Large numbers - meaningful outputs

Promoting and evidencing NAAASP

Projects, collaborations going forward. . .

- Cardiovascular risk factors in AAA screening patients
  - Lifestyle, exercise, smoking
  - Turndown for intervention – is there room for pre-optimisation in the screening period
  - Associated peripheral arterial disease
- Why is there large variation in national UK practice for intervention?
- Is there an association between socioeconomic status and screening attendance?
  - What about ethnicity/minority groups? Postcodes?
- Many other vascular bodies have trainee representation.

VOLUNTEER



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- Join us…

Thank you

Sandip.Nandhra@nuth.nhs.uk

VERN – http://vascular-research.net/

@VascResearchNet

Rouleaux Club - http://www.rouleauxclub.com/

Public Health England

Protecting and improving the nation's health

NHS Abdominal Aortic Aneurysm Screening Programme National Research Day 2019

Newcastle

7 February

A package of audits: the minimum set

Morag Armer, Regional Quality Assurance Lead, South, Public Health England

Public Health England

Which audits: the minimum set?

7 February 2019

Julie Till- Wylie
QA Advisor
Midlands and East

Kaspar Pedersen
QA Advisor South

Morag Armer
Consultant in Public Health
Head of QA South

Public Health England

Background

- Service Specification

- Where we started:
  - QA visits
  - Variation in audit activity
  - No single point of reference

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Aims

- Provide guidance for services, commissioners and SQAS on audits
- Support the development of local audit schedules
- Linking audit activities to national guidance
- (and guide service improvement)

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Audit in AAA & HRA definitions

Checks

- routine confirmation to verify tasks & processes have been completed
- timely, appropriate & sequenced

Audits

- overview of process outcomes & performance
- built on the outputs from checking
- measures against defined criteria or standard

Research

- generates new data, information and evidence
- discovers new insights - tests hypothesis by applying scientific methodology
- requires ethical approval

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Guidance on checks and audits

Title/Outline	Type	References	Notes	Frequency
Letters Make sure the right letters, with the right leaflets are sent to the right person Monitoring Post Office returns	Check, best practice Check, best practice	Assured to QA in QA Visit Questionnaire: B16, B18, B19	To check this the service can randomly open samples to confirm correct Where services subcontract this work to an external provider this assurance should be requested from the sub-contracted provider via contract management For services that do not or only partially subcontract their mailing then this is covered by internal QA checks that the screening service can request assurance reports for The basic process is a check – the follow on action may be to conduct an audit in a systematic way	Daily check to ensure the letters are issued correctly Audit processes 6-monthly or linked to changes within the service
Clinic lists Lists of patients to be seen in each clinic that day and the basis for recording that process has been completed for patients on the list	Check, mandatory	AAA Screening Standard Operating Procedures: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/598365/AAA_Screening_Standard_Operating_Procedures_March_2017.pdf AAASP failsafe processes: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/463734/AAA_screening_2015-09-23_Failsafe_v2.1.pdf Assured to QA in QA Visit Questionnaire: B39	Screening results should also be recorded in writing on a printed work sheet at each clinic. These work sheets should be managed in line with local information governance policy and submitted to the local programme office, from where they can be checked and filed for audit The basic process is a check – the follow on action may be to conduct an audit in a systematic way Consent and clinic process is covered by failsafe AAA4. Services are required to follow SOP and: *Check data included in monthly activity reports for programmes. Review alerts daily and clear incomplete records* [on national software system (SMaRT) SSPI Log]	Each clinic and all clinics within each 12 month round

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Examples

Checks	Audits
cohort	uptake
letters	non-vis
clinic lists	incidental findings
clinic rooms	surveillance
info in clinics for consent process	ruptured AAA in screened men
image uploads	tracked referrals
communication of results	deaths
internal QA of images	HEA
ultrasound equipment	
VSN appointments	
inappropriate referrals	
outcomes	

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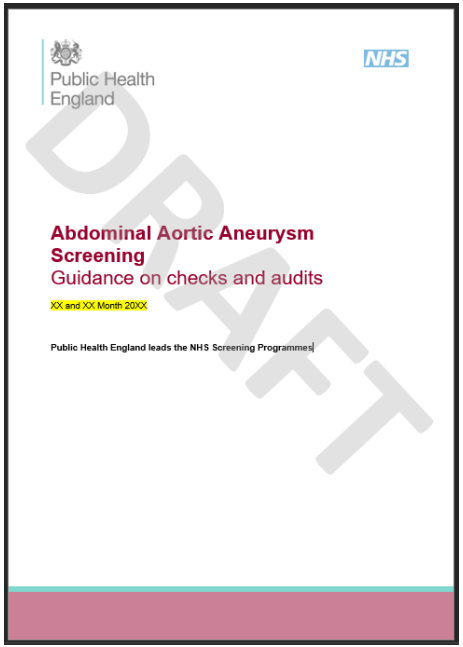
Where we are

- Draft guidance (gone to RAC for approval)
- Watch this space!



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Shared decision-making with AAA patients

Jan Lecouturier, Institute of Health and Society, Newcastle University

Newcastle University

Institute of Health & Society

Decision-making in the treatment of AAA: preliminary findings

Jan Lecouturier, Richard Thomson, Gerry Stansby

Background

Newcastle University
Institute of Health & Society

- Treatment choice: conservative management, open or endovascular repair
- Treatment decisions should be influenced by patients' clinical characteristics, their preferences and potential trade-offs
- Little understanding of how decisions are made in practice, how engaged patients are in decision making, or the challenges for patients and clinicians

Models of clinical decision making in the consultation

Newcastle University
Institute of Health & Society

Shared Decision Making is an approach where clinicians and patients make decisions together using the best available evidence.
(Elwyn et al. BMJ 2010)

Paternalistic ⟷ **Shared Decision Making** ⟷ **Informed Choice**

Patient well informed (Knowledge)

Knows what's important to them (Values elicited)

Decision consistent with values

Study – aims & objectives

Newcastle University
Institute of Health & Society

- To understand current practice in treatment decision making and identify ways in which this could be supported

- Interview patients and clinicians to explore:
  - Perspectives on risk communication and information
  - Which factors are important and influence decision making
  - What might help in the decision making process

- Record consultations to analyse treatment decision making

Methods

- Data collection
  - In-depth face to face/telephone interviews with topic guide
  - Recorded consultations

- Analysis
  - Thematic analysis

Participants

- Patients
  - **Post-surgery (8 interviewed)***
  - At point of making decision about treatment (5 interviewed)

- Clinicians
  - Vascular surgeons; Anaesthetists, Radiologists; Nurse specialists; Pre-assessment/Screening Staff (10 interviewed)

Treatment

- **Patient recall of ..**
  options for treatment
  - Open as not suitable for stent (1)
  - To be decided in theatre (1)
  - Open or stent (6)
- **Patient recall of ..**
  planned procedure
  - Open surgery(7)
  - To be decided in theatre (1)

- **Actual procedure**
  - Open surgery (6)
  - Stent (2) - FEVAR (1); EVAR (1)

Post-surgery patient participants – reported information provision

Newcastle University
Institute of Health & Society

- One patient could only remember the open repair being discussed, the remainder said both options had been explained

- All reported they were happy with the amount and type of information
    - *'I got all of the information I needed, more than I needed. I knew exactly what was going on and what could happen.' Pt03*

    - *'(leaflet) was really good because you saw exactly where the swelling was in your aorta'.* Pt07

Recall of information on risks & factors influencing choice

Newcastle University
Institute of Health & Society

Focus on risks of stent

'I could get the stent put in which was not as intrusive as the open surgery but I was informed that after a while the stent could move.' Pt02

'They said once it was done it was fixed …. With the other one I'd still need to keep being checked and I could be back to have further procedures done.' Pt04

'He said I had two choices, the keyhole surgery or the other one. But the keyhole surgery could slip and I might have to go back maybe a few times.' Pt07

Factors influencing choice cont'd…

Newcastle University
Institute of Health & Society

- Fitness tests - that they were fit enough seemed to diminish the importance of other factors about open surgery; no one mentioned length of stay or recovery time

'He told me the big operation he would cut me up the stomach and he said I was fit enough. So I just said "Okay". I think it was worth the risk.' Pt07

'(told) the stent was easier to do than the big one but I went through all the tests and I was fine.' Pt02

Decision making

- Six patients said their options were open or endovascular repair
- One patient wanted the clinician to choose

- For some patients their key decision was whether or not to have surgery

'I think I took the right decision. I'm sure I did. Otherwise it might have burst by now. I could have been gone.' Pt01

'Well, I think we (pt and spouse)had really discussed it before we went. We'd said there's not much choice, you either do it or you don't. So, we said yes.' Pt07

Engagement in decision making

Newcastle University
Institute of Health & Society

There was a mixed picture around patient engagement

'I made it (decision) with the doctor … he explained that the open surgery was, that was far more prone to the shunting going wrong than the other one. I asked him, I said, "Well, could you put it into percentage forms for me so I understand? … He said, "With the closed one you've got 1% chance of something going wrong. With the open one you've got about 4% of a chance"... (Pt said)"If it's 4% let's go for that".' Pt04

Engagement in decision making

Newcastle University
Institute of Health & Society

'He said "I would like to again, discuss with you stent versus open surgery …We've looked at your fitness … and I think you could have open surgery. I would advise that you do have open surgery because … it's a permanent fix. With a stent, you have to go for an MRI scan every year, to check the stent …you've got 10 years … but it could start to leak and it would have to be revisited… At the moment, I'm absolutely snowed under with what I call 'revisits'. … you're 70 now, you'll be 80 when you have another operation. Will your fitness be the same or will it go down?". So he said "I would definitely recommend open surgery". So I said "Right, you're the boss…you know what you're talking about, open surgery it is." P05

Summary

- Of those who had opted for open surgery few mentioned the risks or recovery time
  - Fact that deemed ‘fit’ for open seemed to overshadow the risks of the procedure
  - Potential for future procedures is a cited barrier to stent
- Though based on a small sample, are clinicians advocating open surgery more than stent?
- Further data collection focusing on the consultation where a decision is made may shed more light on this.

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Weekend screening: increasing uptake in men who DNA

Andrew Duncan, Clinical Research Fellow, University Hospitals of Leicester NHS Trust
Akhtar Nasim, University Hospitals of Leicester NHS Trust
Annette Olalobo, Programme Coordinator and Nurse Specialist, Leicester AAA Screening Programme

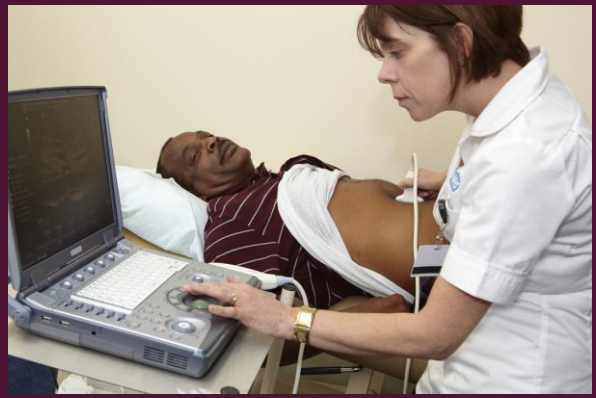
University Hospitals of Leicester
NHS Trust

WEEKEND SCREENING:

INCREASING UPTAKE IN MEN WHO DNA NAAASP SCREENING IN LEICESTERSHIRE AND RUTLAND

A OLALOBO, A DUNCAN, A NASIM

UNIVERSITY HOSPITALS OF LEICESTER



NAAASP IN LEICESTERSHIRE AND RUTLAND

- Screen up to 4,500 men a year
- 2017/18 report – only 34.3% men offered timely second scan following 1st DNA
- 1335 DNA'd appointments 2017/18
- Collaboration with neighboring units
    - Derby NAAASP screening DNA survey

SURVEY

- 1000 letters sent to men who had 'DNA'd' their appointment for AAA screening, with a SSAE
- 217 surveys (21.7%) were returned
- 174 requested another appointment
- 112 attended (11.2%)
- 1 AAA diagnosed and placed into surveillance

SURVEY

- 43% stated they had received an initial invitation
- 83% of these men felt they had a good understanding of the programme
- 80% of these men felt they had enough information provided to make an informed decision

SURVEY

When asked why they didn't attend the appointment:	
I forgot	29
I am still working	24
Appointment date/time inconvenient	23
I do not want to have this test	17
I was on holiday	12
It was too far to travel	10
I prefer not to know	7 (all these men also answered they did not want the test)
I did not have any transport	7
Barriers to attendance (mobility/language)	5
I have already had an USS	5
I do not feel I am well enough to have this test	1

SURVEY

- 31% stated they would be more willing to attend an appointment at the weekend
- We asked patients to include their telephone number if they wished to make another appointment
- They were phoned and an additional appointment was arranged with the option for Saturday clinics
- Of the 174 patients who requested an appointment, 64% attended.

INITIAL INVITATION DID NOT INFLUENCE SECOND APPOINTMENT

- 51.6% of those who received an initial invitation attended a second appointment
- 51.7% of those who did not received an initial invitation attended a second appointment
- 50% of those who did not answer question 1 attended a second appointment

INFLUENCE OF REASON FOR DNA ON SECOND ATTENDANCE

Top five reasons stated for initial DNA	Percentage who took second appointment
I forgot	69%
I am still working	54%
Appointment date/time inconvenient	61%
I do not want to have this test	0%
I was on holiday	92%

CONCLUSIONS

- Survey generated a reasonable response – and diagnosed 1 new AAA
- Those who DNA'd appointments due to personal preference unlikely to attend even with reminders
- Those who DNA'd appointments due to forgetting, inconvenient time or holidays very likely to attend second appointment
- Collaboration between units aids in improving screening services

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Improving Quality Assurance

Dr Colin Nice, North East and North Cumbria AAA Screening Programme and Freeman Hospital, Newcastle

Improving Quality Assurance

Colin Nice

North East and North Cumbria AAA Screening Programme

Quality Assurance (QA)

(QA) is the process of checking that national standards are met and encouraging continuous improvement

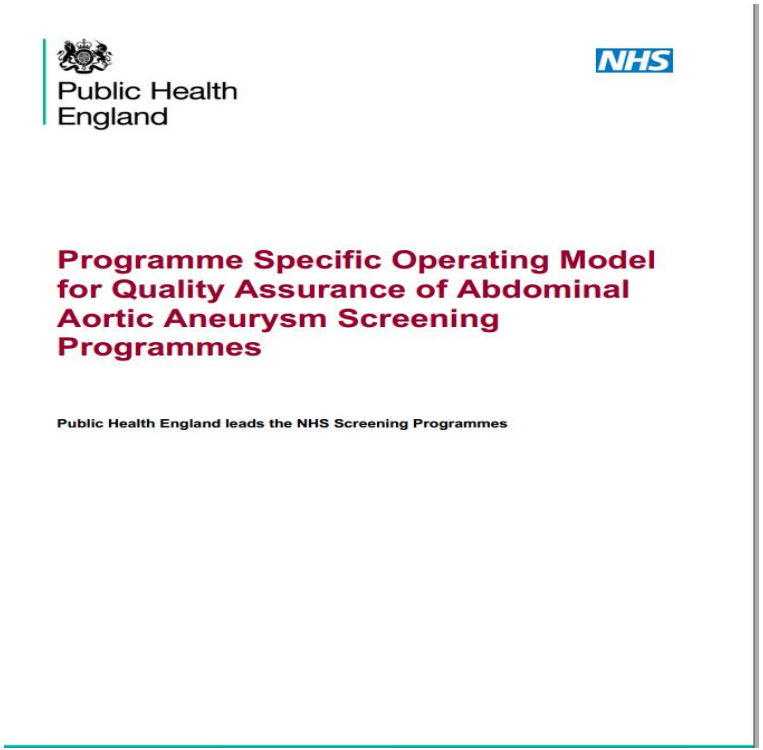
- The role of the Screening Quality Assurance Service (SQAS) is to:
- assess the quality of local screening programmes
- monitor compliance with standards
- support services with improving quality
- undertake regional level quality assurance visits

Quality Assurance visits

- Routine monitoring data
- Evidence submitted by the provider(s), commissioner and external organisations
- Information shared with SQAS

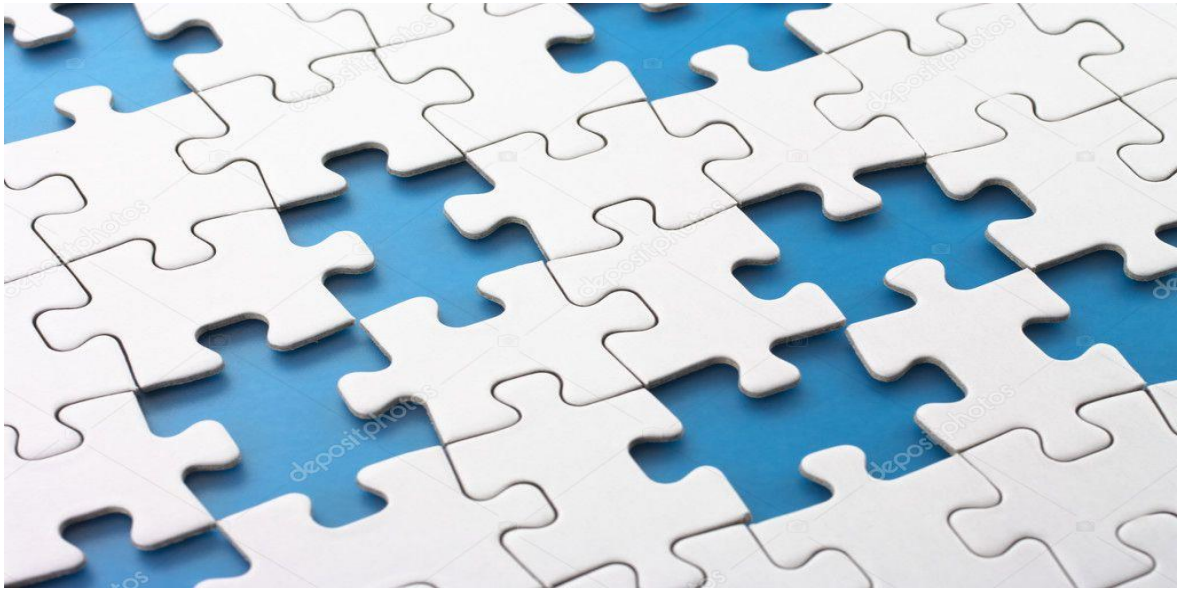
Quality Assurance visits

- First round concluded end 2018
- QA visit process evolving
  - Screening technician interviewed
  - Updated QA visit questionnaire
  - Evidence list
  - Visit report template



Quality Assurance visits

- Venues?
- Images
- Image QA process



Images

The characteristics of an acceptable image are **not sufficiently defined**

The current terminology is **subjective**

Programme QA leads have a potential conflict of interest;

There is **no external quality assurance** of image quality (the current system is reliant upon self-reported data)

Image Quality Workshop 2017

Image Quality Workshop 2017

To initiate project/working group to further develop, improve and update the mechanism and reporting for assessing quality of images undertaken by screening technicians within NAAASP

Image characteristics assessed at QA and recorded on the Screening Management and Referrals Tracking (**SMaRT**) IT system comprise;

Depth

Focus

Gain

Calliper placement

Should we add anatomical landmarks? lumbar spine on both the longitudinal (LS) and transverse (TS) images and the inferior vena cava (IVC) on TS images

Image Quality Workshop 2017

- It was also agreed that any scoring system should be;
- **Simple**
- **Practical**
- **Able to achieve reproducible results**
- **Applicable to all AAA screening images**
- These factors were collated into a 10 point scoring system

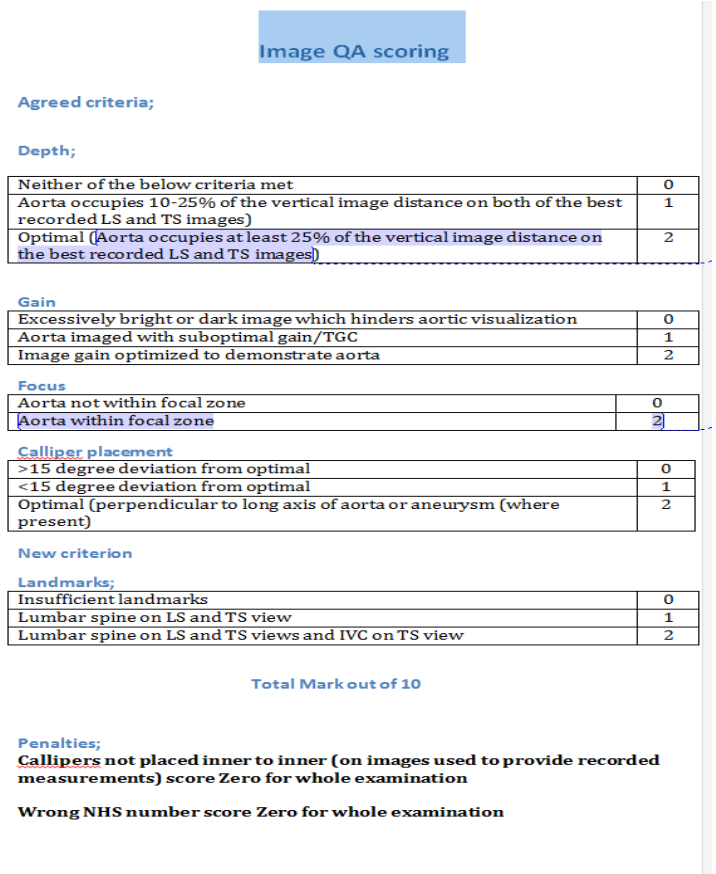


Image QA scoring

Agreed criteria;

Depth;

Neither of the below criteria met	0
Aorta occupies 10-25% of the vertical image distance on both of the best recorded LS and TS images)	1
Optimal (Aorta occupies at least 25% of the vertical image distance on the best recorded LS and TS images)	2

Gain

Excessively bright or dark image which hinders aortic visualization	0
Aorta imaged with suboptimal gain/TGC	1
Image gain optimized to demonstrate aorta	2

Focus

Aorta not within focal zone	0
Aorta within focal zone	2

Calliper placement

>15 degree deviation from optimal	0
<15 degree deviation from optimal	1
Optimal (perpendicular to long axis of aorta or aneurysm (where present)	2

New criterion

Landmarks;

Insufficient landmarks	0
Lumbar spine on LS and TS view	1
Lumbar spine on LS and TS views and IVC on TS view	2

Total Mark out of 10

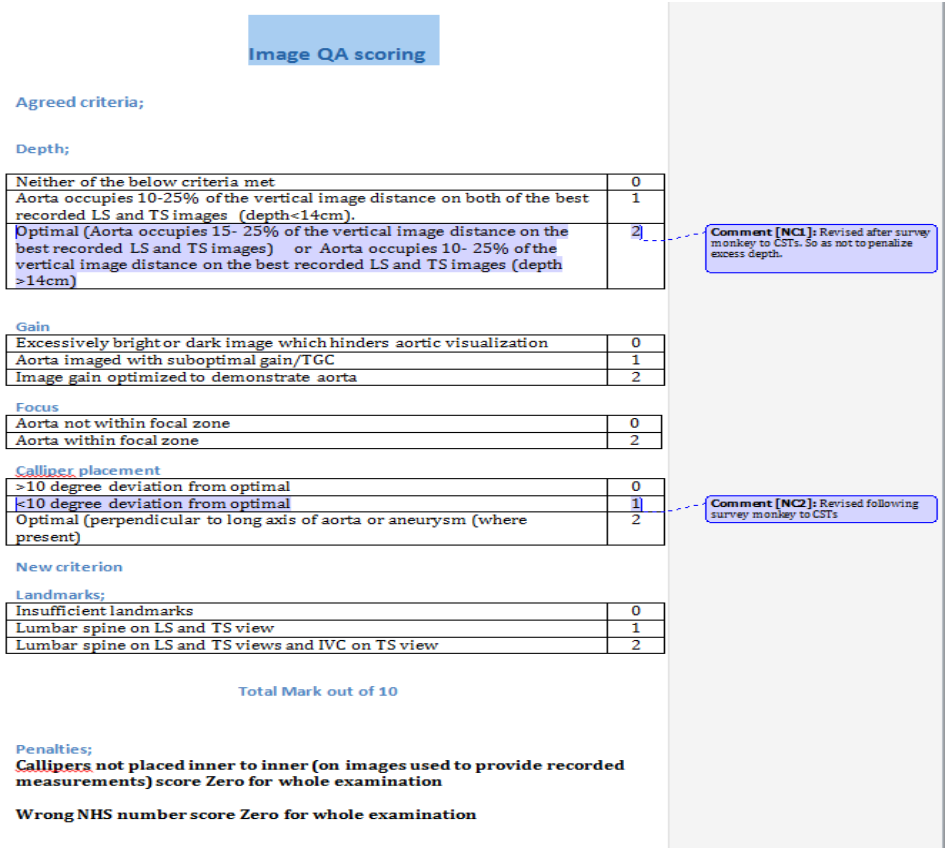
Penalties;

Callipers not placed inner to inner (on images used to provide recorded measurements) score Zero for whole examination

Wrong NHS number score Zero for whole examination

Benchmarking 2018

- Optimal depth-aorta occupies 15-25% (of the vertical image distance on the best recorded longitudinal and transverse images)
- Threshold between suboptimal and poor calliper placement >10 degrees deviation to long axis of aorta
- Essential landmarks Lumbar spine on longitudinal and transverse views and IVC on travsverse views
- Omissions or errors to be penalised? Callipers not placed inner to inner **and** wrong nhs no/demographics recorded



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Comment [NC1]: Revised after survey monkey to CSTs. So as not to penalize excess depth.

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Comment [NC2]: Revised following survey monkey to CSTs

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Wrong NHS number score Zero for whole examination

Progress

- NAAASP Research Advisory Committee approval
- Methodology for image anonymisation clarified
- Confirmed that no ODR approval required
- Images currently being compiled

Coming shortly

- 20+ CSTs/QA leads
- Score an image set of 50 cases (anonymised) comparing (in 2hours)
  - On SMaRT
  - Using your viewing set up
- Reliability
- Reproducibility
- Time efficiency and user comments

Image QA scoring

Agreed criteria;

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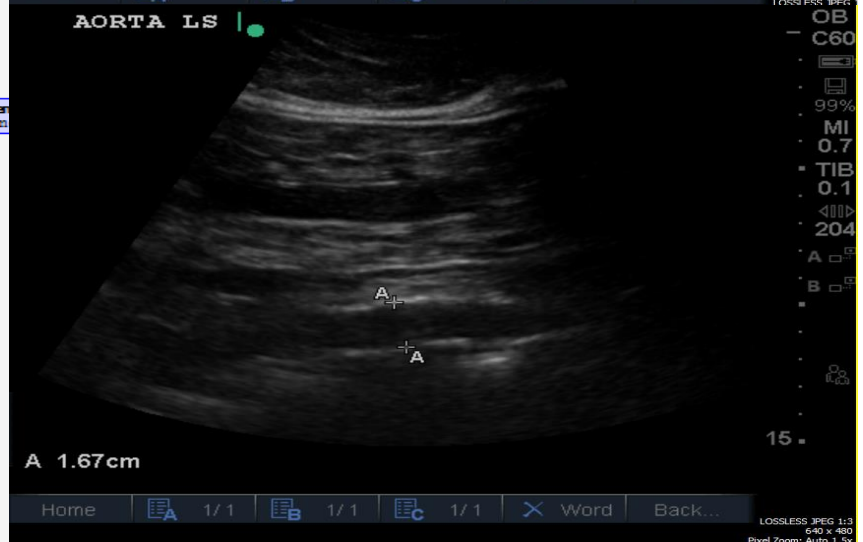

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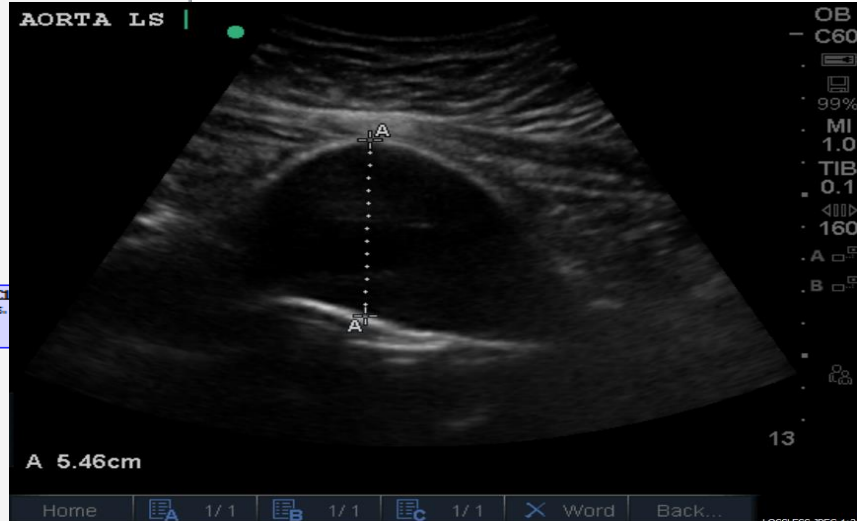

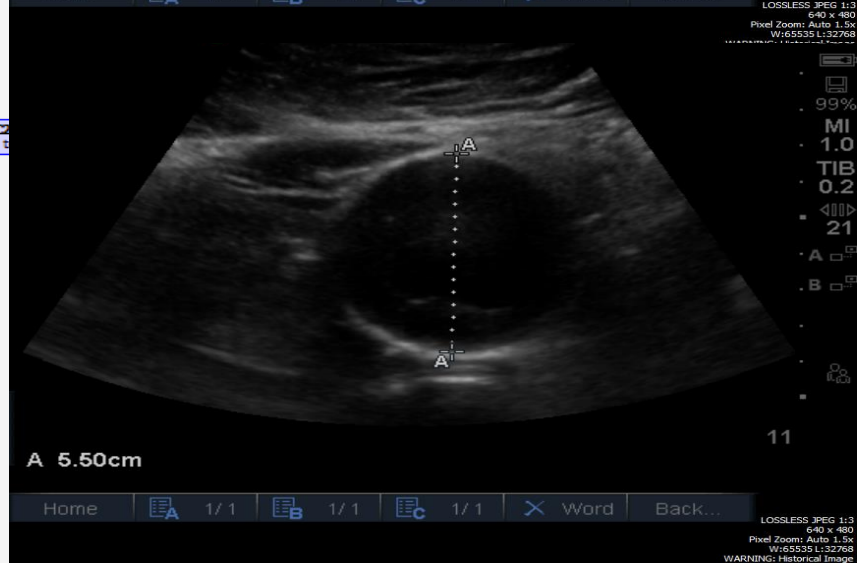

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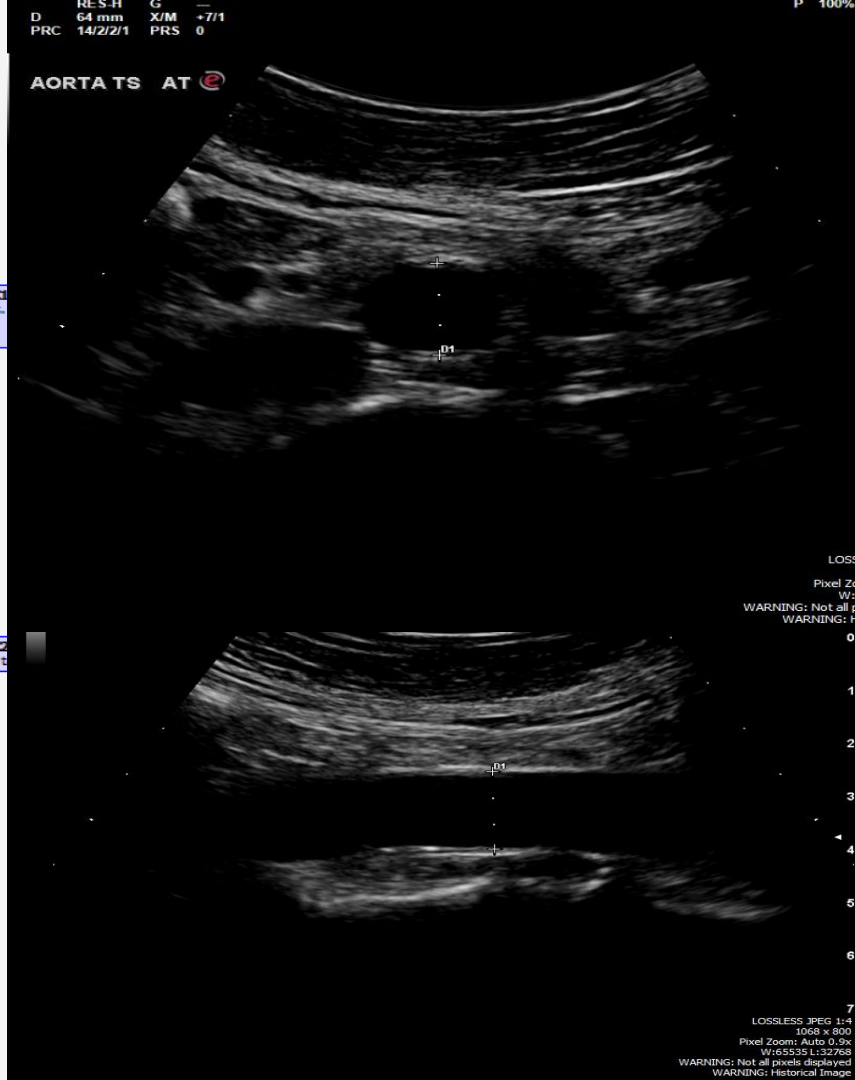

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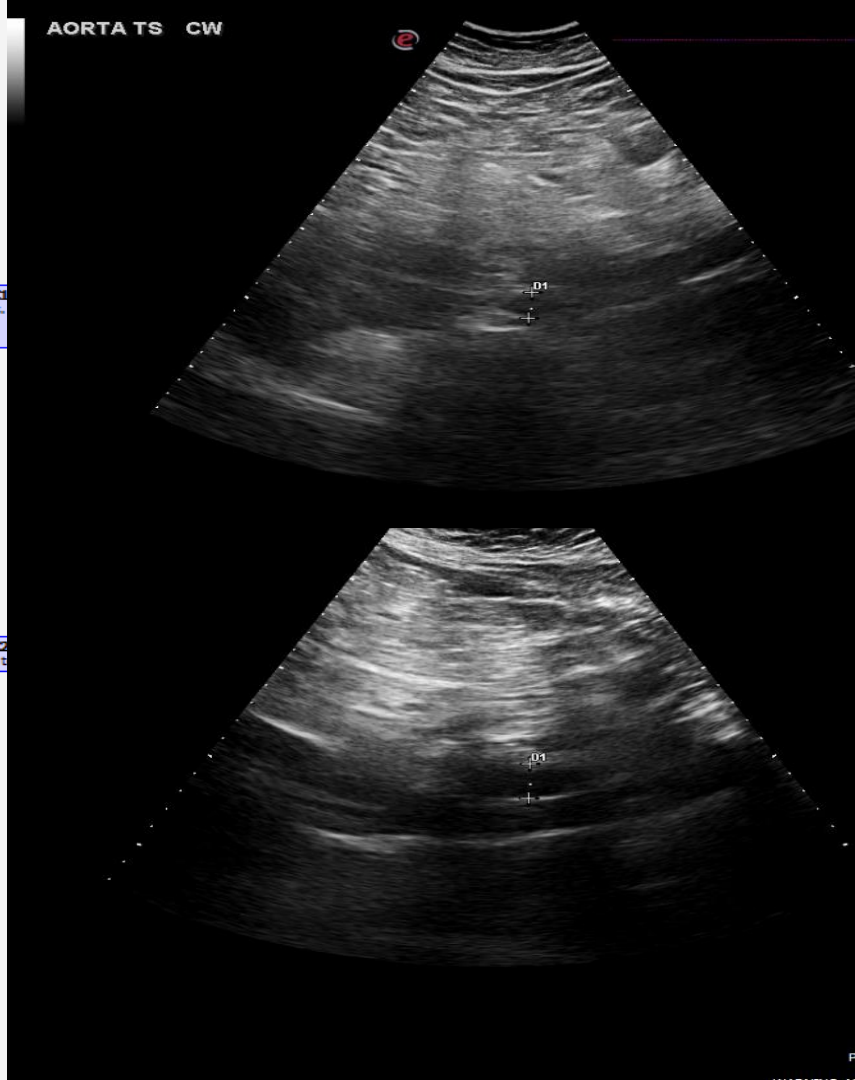

- For further information please contact colin.nice@nuth.nhs.uk or timhartshorne@nhs.net

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