NHS Abdominal Aortic Aneurysm Screening Programme
Guidance for the validation of AAA pathway standards

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Public Health England leads the NHS Screening Programmes

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

Public Health England, Wellington House, 133-155 Waterloo Road, London SE1 8UG
Tel: 020 7654 8000   www.gov.uk/phe
Twitter: @PHE_uk   Facebook: www.facebook.com/PublicHealthEngland

About PHE Screening

Screening identifies apparently healthy people who may be at increased risk of a disease or condition, enabling earlier treatment or better informed decisions. National population screening programmes are implemented in the NHS on the advice of the UK National Screening Committee (UK NSC), which makes independent, evidence-based recommendations to ministers in the four UK countries. The Screening Quality Assurance Service ensures programmes are safe and effective by checking that national standards are met. PHE leads the NHS Screening Programmes and hosts the UK NSC secretariat.

PHE Screening, Floor 2, Zone B, Skipton House, 80 London Road, London SE1 6LH
www.gov.uk/topic/population-screening-programmes
Twitter: @PHE_Screening   Blog: phescreening.blog.gov.uk

Prepared by: Jo Jacomelli
For queries relating to this document, please contact: phe.screeninghelpdesk@nhs.net

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Introduction

Quality assurance standards were established in 2009 for Abdominal Aortic Aneurysm (AAA) screening. These standards were developed by the the screening programme and latterly PHE to ensure that the local screening services are delivering high quality services for their local populations and achieving the AAA programme objectives. During 2014 the quality assurance standards were revised and republished as pathway standards.

The definitions for the standards have been agreed by the AAA Programme and are described in the metadata section below.

A bespoke report to extract the relevant data from the SMaRT (screening management and referral tracking) system has been developed. This report is based upon a number of queries that extract data from the tables that form the basis of the system and inclusion and exclusion criteria in order to meet the definitions of the standards. Due to the complexity of some of these queries it will not be possible for local screening services to calculate the figures for certain standards. Where local screening services can calculate all or part of the figures for the standard, the method is described in the validation/ checks box of the metadata tables. If a standard is not present then it is not to be measured using SMaRT.

It is recommended that local screening services undertake validation of the pathway standards produced by the AAA programme, where possible, in preparation for the publication of annual data and for quality assurance visits. Local screening services will be supplied with a table in which to compare the percentages from the pathway standard data report with their own locally generated figures, an example of which is provided at the end of this document. The self-referral figures are provided for information only. Where standards relate to cohort and self-referral tests these will identified in the validation table. This document should be used in conjunction with the AAA pathway standards v3.1 reports and the Pathways Standards for NHS Abdominal Aortic Aneurysm Screening Programme v1.3 document.

How to use the pathway standards metadata

Metadata provides a description of a piece of information. In this case a pathway standard so that the details of how it is defined, what it measures and how it is calculated can be understood. Metadata are used to ensure that there is clarity and transparency around each standard by both those creating the data and those using it. The metadata tables below are presented so that local screening services are aware of the definitions for each of pathway standards and the calculations used for the report.

For each of the pathway standards in the Pathway Standard Report, which are calculated from SMaRT, a metadata table has been created that includes:

- metric name
- objective
- criteria
- reference number
- query used in the SMaRT report
- numerator – detail of the inclusion and exclusion criteria
- senominator – detail of the inclusion and exclusion criteria
- a simplified plain language calculation Mitigations/ qualifications as to why there may be differences between the Report derived figure and the Programme derived figure
- the reporting period for the numerator and denominator
- validation or checks that the Programme can perform to check the numerator and or denominator

The queries used in the SMaRT report have been included to demonstrate the complexities around extracting the data. It is not expected that local screening services will have experience of viewing queries in this manner and so the numerator, denominator and simplified calculation have been included. The query is included for transparency.

Local screening services are encouraged to familiarise themselves with the tables below. Where indicated in the validation/ checks box, local screening services should run the queries in order to verify the figures in the report are accurate. Guidance on which queries to run is provided to ensure that local screening services extract the data in the same way as the SMaRT query where possible and so that the validation is consistent across all local screening services. Unfortunately it is not possible for local screening services to verify all of the standards using the search fields available to them

on SMaRT. However, local screening services should be able to provide a sense check as to whether the figures are likely to be accurate. In order to facilitate resolution of discrepancies between the Pathway Standards Report and the locally derived figures, local screening services can enter the details of search criteria used in validation table, an example of which is available at the end of this document. It is not expected that local screening services will be able to reproduce the figures exactly as SMaRT is a dynamic system, which is constantly being updated. Therefore if a percentage calculated by the local screening service is within 5% of the percentage from the report, it will be accepted as valid.

Pathway standards metadata

Standard	1a: Percentage of eligible subjects who are offered initial screen
Objective	To maximise uptake in eligible population who accept screening
Criteria	Completeness of offer
SMaRT report query	=([Offer Appt - Init (LTE scr year+3 months)] where ([Appointments].[Eligible for initial screen]="Y") / [Provider].[Eligible subjects])*100
Numerator	Men eligible for the initial screen offered an initial appointment date which occurs within the screening year plus an additional 3 months (in the event of a man being invited on the last day of the screening year). Eligible men = initial screening outcome **is NOT** • incomplete - deceased, • incomplete - linked records, • incomplete - out of cohort, • not required - assessments and outcomes only, • not required - existing surveillance, • not required - permanent ineligible
Denominator	Men eligible for the initial screen Eligible men = initial screening outcome **is NOT** • incomplete - deceased, • incomplete - linked records, • incomplete - out of cohort, • not required - assessments and outcomes only, • not required - existing surveillance, • not required - permanent ineligible
Simplified Calculation	$$= \frac{\text{Number of eligible men offered an initial appointment}}{\text{Total number of eligible men}} \times 100$$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted. The service spec report includes ineligible and eligible men but the pathway standards report only counts eligible men. The service spec report only includes activity within the stated timeframe but the pathway standards report will include appointments offered that occur in the future.
Reporting period	Initial screening year
Validation/ checks	**Numerator:** Please note that the numerator value obtained will be the sum of the complete and incomplete values in the report table. Go to the service spec report. Select the appropriate screening year. Select "initial screening" from activity type and "in cohort" from subject type. For the reporting period select the date that you started screening men for the relevant year in the "from" date and then the end date of the quarter for the "to" date, for example, for Q1

2015/16 it may be 01/01/2015 to 30/06/2015. For quarter 4 you will need to extend it by 3 months or use the current date if it is before the end of the 3 months. For example, 2015/16 would be 01/01/2015 to 30/06/2016. Click on the run report button.

The number of men offered an initial appointment will be the total subjects in the search. Please note that the number returned will only be the number offered that are due to occur in the time frame specified. The pathway standards report will include men whose appointment occurs in the future. The service spec report will also include men offered an appointment who are then made ineligible. However, the pathway standards report only includes eligible men.

Denominator: Start a new search and under the demographics tab, select the screening year of relevance. Go to the Status tab. Chose "Initial Screening" from the drop down list under Care Pathway. From the list that appears select everything **EXCEPT** the following statuses and click the button with the white down arrow in the red circle:

- incomplete – deceased,
- incomplete – linked record,
- incomplete – out of cohort,
- not required – assessment and outcomes only,
- not required – existing surveillance,
- not required – permanent ineligible.

It should look like this:

Click on submit search criteria button. When the results appear the total number of men can be found just above the modify search button.

Standard	1bi: Percentage of eligible subjects who are offered annual surveillance screen
Objective	To maximise uptake in eligible population who accept screening
Criteria	Completeness of offer
SMaRT report query	=Sum(Count([Appointment Booking Due date] Where ([Within 6 weeks (offer)] ="Within 6 weeks" And [Died annual]="Alive" And [Excluded annual]="Eligible" And [Appointment Type]="Surveillance 12 Months")) ForEach ([Confidential ID])) / Sum(Count([Appointment Booking Due date] Where ([Died annual]="Alive" And [Excluded annual]="Eligible" And [Appointment Type]="Surveillance 12 Months")) ForEach ([Confidential ID]))
Numerator	Number of appointments offered within 6 weeks of the corresponding due date where the man was eligible for annual surveillance
Denominator	Number of appointments due where the man was eligible for annual surveillance
Simplified Calculation	$$= \frac{\text{No. annual surveillance appts offered}}{\text{Total annual surveillance appts due}} \times 100$$ Where the appointments offered are within 6 weeks of annual surveillance due date
Mitigations/ qualifications	Men who pass away within 6 weeks of their due date will be excluded from the numerator and denominator. Men who are made ineligible within 6 weeks of their due date will be excluded unless they have been conclusively tested.
Reporting period	Appointment due date within the screening year
Validation/ checks	**Numerator:** Use the Surveillance – Confidential IDs tab and apply a filter and select "Surveillance 12 Months" for Appointment type, "Alive" for Died and "Eligible" for Excluded. Go down the confidential ID list and look for multiple records for one ID number. Check to see if they are for the same due date. If they are check to see if there is one record with "within 6 weeks" for Offered within timeframe Right click on the row number and hide the rows which are outside 6 weeks if there is one record with "within 6 weeks" for Offered within time frame.

If there are multiple records offered within the timeframe select one record to retain in the list, hide the other rows.

Once you have completed the whole list so that there is only one record per confidential ID and due date, count the number of records with "within 6 weeks" for offered in the time frame for the numerator. Remove the filter and unhide the rows for subsequent checks.

Denominator: Use the Surveillance – Confidential ID tab. In the list of cases copy the confidential ID, appointment type, date of death, died, excluded and appointment booking due dates and paste into a fresh sheet.

	A	B	C	D	E	F
1	Confidential ID	Appointment due date	Date of death	Died	Excluded	Appointment Type
2	10005000000002	31/03/2016		Alive	Eligible	Surveillance 12 Months
3	10005000000002	09/03/2016		Alive	Eligible	Surveillance 12 Months
4	10005000000002	08/01/2016		Alive	Eligible	Surveillance 12 Months
5	10005000000003	05/03/2016		Alive	Eligible	Surveillance 12 Months
6	10005000000003	05/03/2016		Alive	Eligible	Surveillance 12 Months
7	10005000000003	05/03/2016		Alive	Eligible	Surveillance 12 Months
8	10005000000004	30/01/2016		Alive	Eligible	Surveillance 12 Months
9	10005000000004	30/01/2016		Alive	Eligible	Surveillance 3 Months
10	10005000000004	19/02/2016		Alive	Eligible	Surveillance 3 Months
11	10005000000004	10/03/2016		Alive	Excluded	Surveillance 12 Months

Go to the Data tab and select remove duplicates.
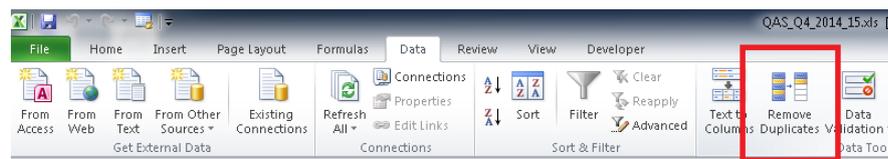
In the options box ensure that death of death is unticked. Then click ok.
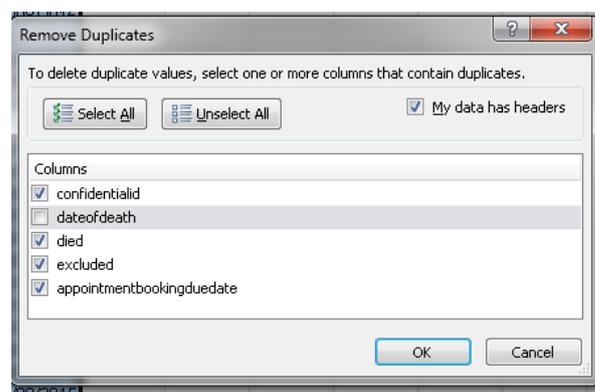
A box will appear telling you how many duplicates were removed and how many unique values remain.

Scroll down and remove any records where the man has died in the died column or is excluded in the excluded column.

Put on a filter for appointment type and select "Surveillance 12 Months". The number of annual appointments will be shown at the bottom of the screen.

34	1000500000000	29/02/2016		Alive	Eligible	Surveillance 12 Months
35	1000500000000	29/02/2016		Alive	Eligible	Surveillance 12 Months
37	1000500000000	15/01/2016		Alive	Eligible	Surveillance 12 Months
41	1000500000000	17/02/2016		Alive	Eligible	Surveillance 12 Months
42	1000500000000	07/01/2016		Alive	Eligible	Surveillance 12 Months
43	1000500000000	10/02/2016		Alive	Eligible	Surveillance 12 Months
44	1000500000000	06/01/2016		Alive	Eligible	Surveillance 12 Months
45	1000500000000	31/03/2016		Alive	Eligible	Surveillance 12 Months
46	1000500000000	31/03/2016		Alive	Eligible	Surveillance 12 Months
51	1000500000001	23/01/2016		Alive	Eligible	Surveillance 12 Months
52	1000500000001	23/01/2016		Alive	Eligible	Surveillance 12 Months

Surveillance / Surveillance - Confidential IDs / Image QA / Referrals / Referrals - Confidential IDs / Shee

Ready   51 of 78 records found

Standard	1bii: Percentage of eligible subjects who are offered quarterly surveillance screen
Objective	To maximise uptake in eligible population who accept screening
Criteria	Completeness of offer
SMaRT report query	=Sum(Count([Appointment Booking Due date] Where ([Within 4 weeks (offer)] ="Within 4 weeks" And [Died quarterly]="Alive" And [Excluded quarterly]="Eligible" And [Appointment Type]="Surveillance 3 Months")) ForEach ([Confidential ID])) / Sum(Count([Appointment Booking Due date] Where ([Died quarterly]="Alive" And [Excluded quarterly]="Eligible" And [Appointment Type]="Surveillance 3 Months")) ForEach ([Confidential ID]))
Numerator	Number of appointments offered within 4 weeks of the corresponding due date where the man was eligible for quarterly surveillance
Denominator	Number of appointments due where the man was eligible for quarterly surveillance
Simplified Calculation	$$= \frac{\text{No. quarterly surveillance appts offered}}{\text{Total quarterly surveillance appts due}} \times 100$$ Where the appointments offered are within 4 weeks of quarterly surveillance due date
Mitigations/ qualifications	Men who pass away within 4 weeks of their due date will be excluded from the numerator and denominator. Men who are made ineligible within 4 weeks of their due date will be excluded unless they have been conclusively tested.
Reporting period	Appointment due date within the screening year
Validation/ checks	**Numerator:** Follow the instructions for the numerator for 1bi but select "Surveillance 3 Months" for the filter and within 4 weeks. **Denominator:** Follow the instructions for the denominator for 1bi but select "Surveillance 3 Months" for the filter and within 4 weeks.

Standard	2a: Percentage of eligible subjects who are tested: initial screen
Objective	To maximise uptake in eligible population who accept screening
Criteria	Coverage
SMaRT report query	=(Count([Tests].[Confidential ID]) Where ([Conclusive Test (Y/N)] ="Y" And [Test LTE Init Scrn Year + 3 Months (Y/N)] = "Y" And [Tests].[Eligible for Initial Screen] = "Y")/ [Provider].[Eligible Subjects]) *100
Numerator	Eligible men who have a conclusive test result within the screening year plus an additional 3 months (in the event of a subject being invited on the last day of the screening year). Eligible men = initial screening outcome **is NOT** • Incomplete - Deceased, • Incomplete - Linked Records, • Incomplete - Out of Cohort, • Not Required - Assessments and Outcomes Only, • Not Required - Existing Surveillance, • Not Required - Permanent Ineligible.
Denominator	Men eligible for the initial screen Eligible men = initial screening outcome **is NOT** • Incomplete - Deceased, • Incomplete - Linked Records, • Incomplete - Out of Cohort, • Not Required - Assessments and Outcomes Only, • Not Required - Existing Surveillance, • Not Required - Permanent Ineligible.
Simplified Calculation	$$= \frac{\text{Number of eligible men with conclusive test result}}{\text{Total eligible men}} \times 100$$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted.
Reporting period	Initial screening year of test
Validation/ checks	**Numerator:** Go to the service spec report. Select the appropriate screening year, select "initial screening" from the activity type and select "in cohort" from subject type. For the reporting period select the date that you started screening men for the relevant year in the "from" date and then the end date of the quarter for the "to" date. For example, for Q1 2015/16 it may be 01/01/2015 to 30/06/2015. For quarter 4 you will need to extend it by 3 months or use the current date if it is before the end of the 3 months. For example, 2015/16 would be 01/01/2015 to 30/06/2016. Click the run report button. The results will be in the second line of the report, "subjects offered screening who are tested". **Denominator:** Follow the instructions for the denominator for 1a

Standard	2bi: Percentage of eligible subjects who are tested: annual surveillance screen
Objective	To maximise uptake in eligible population who accept screening
Criteria	Coverage
SMaRT report query	=Sum(Count([Appointment Booking Due date] Where ([Conclusive Test Result Y/N]="Y" And [Within 6 weeks?] ="Within 6 weeks" And [Died annual]="Alive" And [Excluded annual]="Eligible" And [Appointment Type]="Surveillance 12 Months")) ForEach ([Confidential ID])) / Sum(Count([Appointment Booking Due date] Where ([Died annual]="Alive" And [Excluded annual]="Eligible" And [Appointment Type]="Surveillance 12 Months")) ForEach ([Confidential ID]))
Numerator	Number of conclusive tests occuring within 6 weeks of the corresponding due date where the man was eligible for annual surveillance
Denominator	Number of appointments due where the man was eligible for annual surveillance
Simplified Calculation	$= \dfrac{\text{No. annual surveillance appts with conclusive test results}}{\text{Total annual surveillance appts due}} \times 100$ Where the conclusive tests are within 6 weeks of annual surveillance due date
Mitigations/ qualifications	Men who pass away within 6 weeks of their due date will be excluded from the numerator and denominator. Men who are made ineligible within 6 weeks of their due date will be excluded unless they have been conclusively tested.
Reporting period	Appointment due date within the screening year
Validation/ checks	**Numerator:** Using the Surveillance – Confidential IDs tab apply a filter and select "Surveillance 12 Months" for Appointment type, "Alive" for Died and "Eligible" for Excluded. Go down the confidential ID list and look for multiple records for one ID number. Check to see if they are for the same due date. If they are check to see if there is one record with "within 6 weeks" for Tested within time frame and "Y" for conclusive test (Y/N). Right click on the row number and hide the rows which are outside 6 weeks if there is one record with "within 6 weeks" for Tested within time frame and "Y" for conclusive test (Y/N).

	If there are multiple records outside of the timeframe select one record to retain in the list, hide the other rows. Once you have completed the whole list so that there is only one record per confidential ID and due date, count the number of records with "within 6 weeks" for tested in the time frame for the numerator. Remove the filter and unhide the rows. **Denominator:** Follow the instructions for the denominator for 1bi

Standard	2bii: Percentage of eligible subjects who are tested: quarterly surveillance screen
Objective	To maximise uptake in eligible population who accept screening
Criteria	Coverage
SMaRT report query	=Sum(Count([Appointment Booking Due date] Where ([Conclusive Test Result Y/N]="Y" And [Within 4 weeks?] ="Within 4 weeks" And [Died quarterly]="Alive" And [Excluded quarterly]="Eligible" And [Appointment Type]="Surveillance 3 Months")) ForEach ([Confidential ID])) / Sum(Count([Appointment Booking Due date] Where ([Died quarterly]="Alive" And [Excluded quarterly]="Eligible" And [Appointment Type]="Surveillance 3 Months")) ForEach ([Confidential ID]))
Numerator	Number of conclusive tests occuring within 4 weeks of the corresponding due date where the man was eligible for quarterly surveillance
Denominator	Number of appointments due where the man was eligible for quarterly surveillance
Simplified Calculation	$= \dfrac{\text{No. quarterly surveillance appts with conclusive test results}}{\text{Total quarterly surveillance appts due}} \times 100$ Where the conclusive tests are within 4 weeks for quarterly of annual surveillance due date
Mitigations/ qualifications	Men who pass away within 4 weeks of their due date will be excluded from the numerator and denominator. Men who are made ineligible within 4 weeks of their due date will be excluded unless they have been conclusively tested.
Reporting period	Appointment due date within the screening year
Validation/ checks	**Numerator:** Follow the intructions for the numerator for 2bi but select "Surveillance 3 Months" for the appointment type and within 4 weeks. **Denominator:** Follow the instructions for the denominator for 1bii

Standard	3: Percentage of subjects not responding to first offer to whom a second offer is made, where the appointment is scheduled to take place within the cohort year plus 3 months
Objective	To maximise uptake in eligible population who accept screening
Criteria	Provision of sufficient opportunity to attend
SMaRT report query	= ([New appt within screen year + 3 months after DNA] Where ([Appointments].[Eligible for Initial Screen] = "Y")) / [First Appointment DNA]Where ([Appointments].[Eligible for Initial Screen] = "Y") * 100
Numerator	Eligible men who did not attend at first non-cancelled appointment, offered a new appointment date within the screening year plus 3 months of the first non-cancelled appointment date
Denominator	Men who did not attend first appointment
Simplified Calculation	$= \dfrac{\text{No. of men offered appointment within screening year plus 3 months of DNA}}{\text{Total number of men who DNA first appointment}} \times 100$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted.
Reporting period	Initial screening year
Validation/ checks	The numerator and denominator cannot be calculated from SMaRT.

Standard	4a: Percentage of subjects offered screening who are tested: initial offer
Objective	To maximise accuracy of screen test
Criteria	Uptake
SMaRT report query	= (Count([Tests].[Confidential ID]) Where ([Conclusive Test (Y/N)] ="Y" And [Test LTE Init Scrn Year + 3 Months (Y/N)] = "Y" And [Tests].[Eligible for Initial Screen] = "Y") / [Offer Appt - Init (LTE scr year + 3 months)] Where ([Appointments].[Eligible for Initial Screen] = "Y")) * 100
Numerator	Eligible men tested at initial screen with conclusive test result which occurred within 3 months from the end of the initial screening year. Eligible men = initial screening outcome **is NOT** • Incomplete - Deceased, • Incomplete - Linked Records, • Incomplete - Out of Cohort, • Not Required - Assessments and Outcomes Only, • Not Required - Existing Surveillance, • Not Required - Permanent Ineligible.
Denominator	Eligible men with a confirmed initial appointment date within 3 months of the end of the initial screening year Eligible men = initial screening outcome **is NOT** • Incomplete - Deceased, • Incomplete - Linked Records, • Incomplete - Out of Cohort, • Not Required - Assessments and Outcomes Only, • Not Required - Existing Surveillance, • Not Required - Permanent Ineligible.
Simplified Calculation	$$= \frac{\text{Number of eligible men with conclusive test result}}{\text{Total eligible men offered appointment}} \times 100$$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted. The service spec report includes ineligible and eligible men but the pathway standards report only counts eligible men. The service spec report only includes activity within the stated timeframe but the pathway standards report will include appointments offered that occur in the future.
Reporting period	Initial screening year of test
Validation/ checks	**Numerator:** Follow the intructions for the numerator for 2a **Denominator:** Follow the intructions for the numerator for 1a

Standard	**4bi: Percentage of subjects offered screening who are tested: annual surveillance offer**
Objective	To maximise accuracy of screen test
Criteria	Uptake
SMaRT report query	=Sum(Count([Appointment Booking Due date] Where ([Conclusive Test Result Y/N]="Y" And [Within 6 weeks?] ="Within 6 weeks" And [Died annual]="Alive" And [Excluded annual]="Eligible" And [Appointment Type]="Surveillance 12 Months")) ForEach ([Confidential ID])) / Sum(Count([Appointment Booking Due date] Where ([Within 6 weeks (offer)] ="Within 6 weeks" And [Died annual]="Alive" And [Excluded annual]="Eligible" And [Appointment Type]="Surveillance 12 Months")) ForEach ([Confidential ID]))
Numerator	Number of conclusive tests occuring within 6 weeks of the corresponding due date where the man was eligible for annual surveillance
Denominator	Number of appointments offered within 6 weeks of the corresponding due date where the man was eligible for annual surveillance
Simplified Calculation	$= \dfrac{\text{No. annual surveillance appts with conclusive test results}}{\text{No. annual surveillance appts offered}} \times 100$ Where the conclusive tests are within 6 weeks of annual surveillance due date
Mitigations/ qualifications	Men who pass away within 6 weeks of their due date will be excluded from the numerator and denominator. Men who are made ineligible within 6 weeks of their due date will be excluded unless they have been conclusively tested.
Reporting period	Appointment due date within the screening year
Validation/ checks	**Numerator:** Follow the intructions for the numerator for 2bi **Denominator:** Follow intructions for the numerator for 1bi

Standard	4bii: Percentage of subjects offered screening who are tested: quarterly surveillance offer
Objective	To maximise accuracy of screen test
Criteria	Uptake
SMaRT report query	=Sum(Count([Appointment Booking Due date] Where ([Conclusive Test Result Y/N]="Y" And [Within 4 weeks?] ="Within 4 weeks" And [Died quarterly]="Alive" And [Excluded quarterly]="Eligible" And [Appointment Type]="Surveillance 3 Months")) ForEach ([Confidential ID])) / =Sum(Count([Appointment Booking Due date] Where ([Within 4 weeks (offer)] ="Within 4 weeks" And [Died quarterly]="Alive" And [Excluded quarterly]="Eligible" And [Appointment Type]="Surveillance 3 Months")) ForEach ([Confidential ID]))
Numerator	Number of conclusive tests occuring within 4 weeks of the corresponding due date where the man was eligible for quarterly surveillance
Denominator	Number of appointments offered within 4 weeks of the corresponding due date where the man was eligible for quarterly surveillance
Simplified Calculation	$$= \frac{\text{No. quarterly surveillance appts with conclusive test results}}{\text{No. quarterly surveillance appts offered}} \times 100$$ Where the conclusive tests are within 4 weeks of quarterly surveillance due date
Mitigations/ qualifications	Men who pass away within 4 weeks of their due date will be excluded from the numerator and denominator. Men who are made ineligible within 4 weeks of their due date will be excluded unless they have been conclusively tested.
Reporting period	Appointment due date within the screening year
Validation/ checks	**Numerator:** Follow the intructions for the numerator for 2bii **Denominator:** Follow the intructions for the numerator for 1bii

| Standard	5: Percentage of assessed images of acceptable quality (QA)
Objective	To maximise accuracy of screen test
Criteria	Quality of images/ samples/ testing techniques
SMaRT report query	Cannot currently be queried
Numerator	
Denominator	
Simplified Calculation	
Mitigations/ qualifications	
Reporting period	
Validation/ checks	The numerator and denominator cannot be calculated from SMaRT.

| Standard	6: Percentage of inaccurate calliper placements, determined by review of static image
Objective	To maximise accuracy of screen test
Criteria	Quality of images/ samples/ testing techniques
SMaRT report query	Cannot currently be queried
Numerator	
Denominator	
Simplified Calculation	
Mitigations/ qualifications	
Reporting period	
Validation/ checks	The numerator and denominator cannot be calculated from SMaRT.

Standard	7: Percentage of screening encounters where aorta could not be visualised
Objective	To minimise potential harms from screening
Criteria	Quality of scan
SMaRT report query	=[Non visualised Screens] Where ([Session Type Null Flag] = "No")/[No screening tests] Where ([Session Type Null Flag] = "No") * 100
Numerator	Number of tests recorded as non-visualised
Denominator	Number of screening tests
Simplified Calculation	$$= \frac{\text{Number of non-visualised tests}}{\text{Total screening tests}} \times 100$$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted. Non-visualised also includes technical failure other. Total screening tests can only be estimated in SMaRT.
Reporting period	Initial screening year
Validation/ checks	**Numerator:** Go to the Demographics tab and selecting the relevant screening year. Go to the Screen tab and select aorta non-visualised and other in the list under Technical Failure Type. Click on submit search criteria button. Click on the export button. When the export screen appears add the confidential id to the fields to include in the export. Click on screening results in the additional export information section. Select .csv under file type. Click export file.
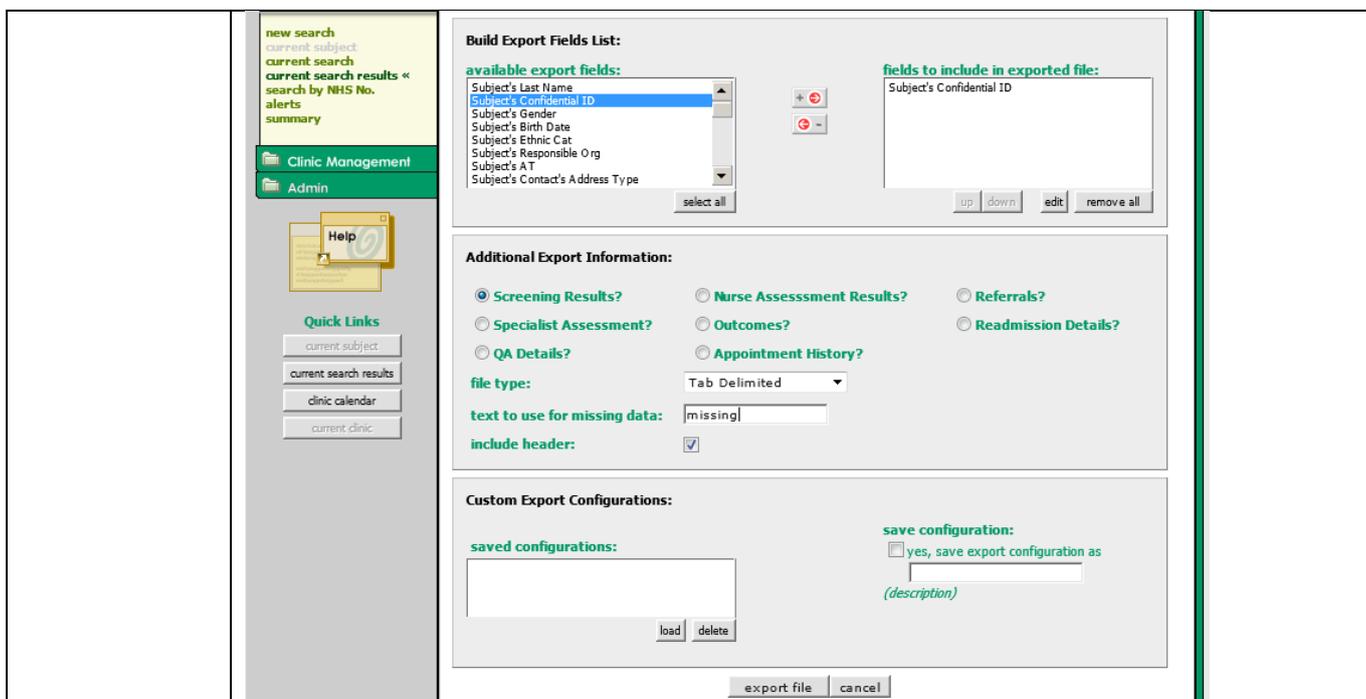
When prompted save the file to your computer. Open excel, go to file and open the export file.Go to the data tab and select filter. Under the column headed technical failure select aorta non-visualised and other. Count the number of records in the filtered results.

Denominator: The denominator can be approximated in SMaRT. This is because the query looks at all tests whereas the query function on SMaRT will only return individuals. Therefore it will not be possible to identify multiple tests for any individual. Start a new search and go to the Demographics tab and select the relevant screening year. Then go to the Status tab and select "Initial Screening" from the drop down list under Care Pathway. From the list select all options that start with Screened and click the button with the white down arrow in the red circle. Click on submit search criteria button. When the results appear the total number of men can be found just above the modify search button.
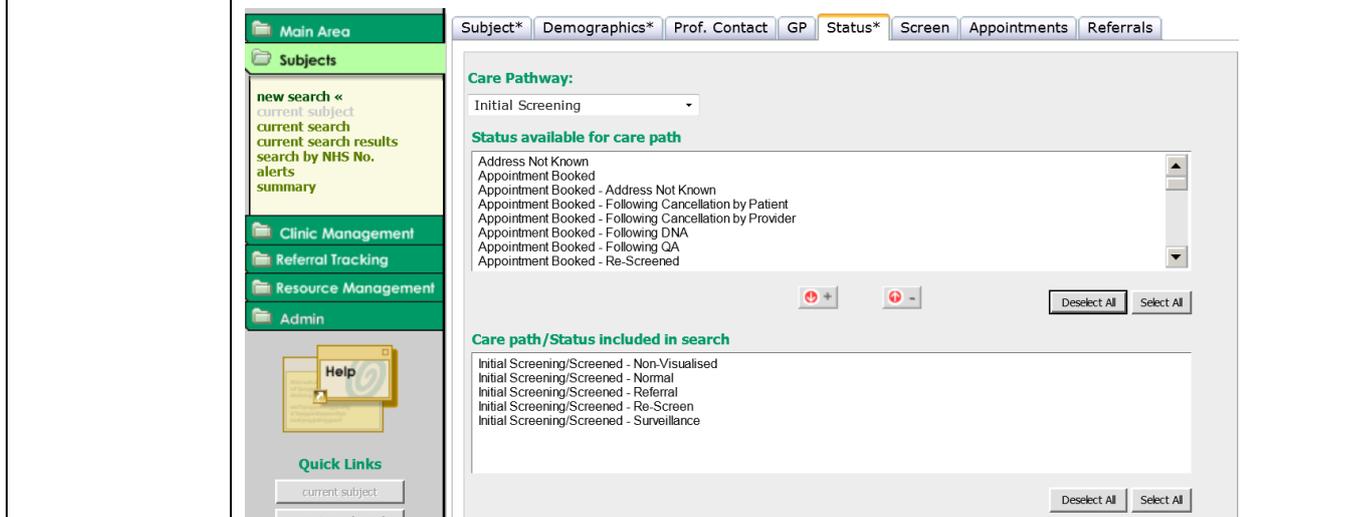
Standard	8: Percentage of incomplete screening episodes
Objective	To optimise public health outcomes in target population
Criteria	Accurate assessment of outcomes
SMaRT report query	= ([Inconclusive Screens].[Total Subjects]/[Subjects Tested including inconclusive]) * 100
Numerator	Number of men screened but with no conclusive test result
Denominator	All men tested regardless of whether a conclusive test result occurred.
Simplified Calculation	$$= \frac{\text{Number of men without a conclusive test result}}{\text{Total men tested including inconclusives}} \times 100$$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted. The numerator will include men who were non-visualised and declined further screening.
Reporting period	Initial screening year
Validation/ checks	**Numerator:** The numerator cannot be calculated from SMaRT. **Denominator:** Follow the instructions for the denominator for 7.

Standard	9: Percentage of subjects with AAA ≥5.5cm referred within one working day
Objective	To minimise potential harms from screening
Criteria	Timely referral
SMaRT report query	= ([No. of Referrals within 1 Day] / [Number of referrals]) * 100
Numerator	Number of men where days between last attended session and referral date ≤1
Denominator	Number of men referred (from any pathway)
Simplified Calculation	$$= \frac{\text{Number of men referred within a day}}{\text{Total men referred}} \times 100$$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted. Referrals will include self referrals and cohort men referred from initial screen or surveillance.
Reporting period	Screening year of requested date of referral
Validation/ checks	The confidential ID for each of the referrals is available in the Referrals – Confidential IDs tab of the report. Please note that there may be duplicate lines for the ID number, which is caused by the time to surgery field. Note, the record will only be counted once in the table. For ease, you can delete these duplicate lines (examples highlighted in yellow below). You may wish to cross reference the information with your tracker.

Patient Type	Confidential ID	Referred within 1 day	Referral appropriate	Specialist assessment outcomes	Time to surgery (days)	Days to 1st attended specialist assessment <=14 days	Days to 1st attended specialist assessment <=56 days
Cohort	45280	Yes	Yes	Surgery planned	50	Yes	Yes
Cohort	45280	Yes	Yes	Surgery planned			
Cohort	77867	Yes	Yes	Surgery planned		Yes	Yes
Cohort	58602	Yes	Yes	Surgery planned		Yes	Yes
Cohort	59550	Yes	Yes	Further investigation required prior to surgery	25	Yes	Yes
Cohort	59550	Yes	Yes	Further investigation required prior to surgery			

Numerator: Count the number of cases with "Yes" in the column referred within 1 day. If there is a blank field please look up the ID number on SMaRT to ensure a date of referral has been entered. If "No" is present check to ensure the date is correct.

Denominator: Count the number of unique confidential IDs.

Standard	**10: Percentage of referred men subsequently found to have an aorta <5.5cm on confirmatory CT or MRI scan**
Objective	To ensure accurate diagnosis
Criteria	Accuracy of diagnosis (false positive rate); reduction in inappropriate referrals
SMaRT report query	=(Count([Specialist Assessments].[Confidential ID]) Where ([Referral Appropriate] = "No")/=[Number of Referrals])*100
Numerator	Number of men with an inappropriate referral
Denominator	Number of men referred (from any pathway)
Simplified Calculation	$$= \frac{\text{Number of men with an inappropriate referral}}{\text{Total men referred}} \times 100$$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted. Referrals will include self referrals and cohort men referred from initial screen or surveillance. The query counts records with "No" in the inappropriate referral field. Therefore if the inappropriate field has not been entered it will not be counted as inappropriate.
Reporting period	Screening year of requested date of referral
Validation/ checks	The confidential ID for each of the referrals is available in the Referrals – Confidential IDs tab of the report. Please note that there may be duplicate lines for the ID number, which is caused by the time to surgery field. Note, the record will only be counted once in the table. You may wish to cross reference the information with your tracker

Numerator: Count the number of cases with "No" in the column Referral appropriate. If the field is blank in the report it is because there are no records with "No". If there is a blank field in the referral appropriate column please look up the ID number on SMaRT and enter if the case was an appropriate referral or not if the information from the CT/MRI scan is available. |

Patient Type	Confidential ID	Referred within 1 day	Referral appropriate	Specialist assessment outcomes	Time to surgery (days)	Days to 1st attended specialist assessment <=14 days	Days to 1st attended specialist assessment <=56 days
Cohort	45280	Yes	Yes	Surgery planned	50	Yes	Yes
Cohort	77867	Yes	Yes	Surgery planned		Yes	Yes
Cohort	58602	Yes	Yes	Surgery planned		Yes	Yes
Cohort	59550	Yes		Further investigation required prior to surgery	25	Yes	Yes
Cohort	76011	Yes	Yes			Yes	Yes
Cohort	52315	Yes	No	Further investigation required prior to surgery		Yes	Yes
Cohort	66391	Yes		Unfit for surgery		Yes	Yes
Cohort	70159	Yes	Yes	Further investigation required to make decision	62	Yes	Yes
Cohort	47329	Yes	Yes	Surgery planned	38	Yes	Yes
Self Referral	56086	Yes	Yes	Other specified	100	Yes	Yes
Self Referral	58444	Yes	Yes	Further investigation required to make decision	54	Yes	Yes
Self Referral	91273	Yes	Yes	Further investigation required prior to surgery	36	Yes	Yes

Denominator: Count the number of unique confidential IDs.

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Standard	11: Percentage of men with aorta ≥5.5cm seen by vascular specialist within 2 weeks
Objective	To ensure high quality and timely intervention
Criteria	Timely treatment/ intervention by specialist, measured from latest successful screen
SMaRT report query	= (Count([Specialist Assessments].[Confidential ID]) Where ([Inappropriate referral] = "No" And [Days to 1st Attended Specialist Assessment]<=14) / [Number of appropriate referrals]) * 100
Numerator	Number of men where days between last attended appointment and first assessment ≤14
Denominator	Number of men appropriately referred
Simplified Calculation	$= \dfrac{\text{Number of appropriately referred men seen by specialist within 2 weeks}}{\text{Number of men appropriately referred}} \times 100$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted. Referrals will include self referrals and cohort men referred from initial screen or surveillance.
Reporting period	Screening year of requested date of referral
Validation/ checks	The confidential ID for each of the referrals is available in the Referrals – Confidential IDs tab of the report. Please note that there may be duplicate lines for the ID number, which is caused by the time to surgery field. Note the record will only be counted once in the table. You may wish to cross reference the information with your tracker. **Numerator:** Count the number of cases with "Yes" in the column Days to first attended specialist assessment <=14 days where Referral appropriate is "Yes", "Not known" or blank. In this example there are 12 men seen within 14 days but one was inappropriately referred so the numerator is 11.

Patient Type	Confidential ID	Referred within 1 day	Referral appropriate	Specialist assessment outcomes	Time to surgery (days)	Days to 1st attended specialist assessment <=14 days
Cohort	45280	Yes	Yes	Surgery planned	50	Yes
Cohort	77867	Yes	Yes	Surgery planned		Yes
Cohort	58602	Yes	Yes	Surgery planned		Yes
Cohort	59550	Yes		Further investigation required prior to surgery	25	Yes
Cohort	76011	Yes	Yes			Yes
Cohort	52315	Yes	No	Further investigation required prior to surgery		Yes
Cohort	66391	Yes		Unfit for surgery		Yes
Cohort	70159	Yes	Yes	Further investigation required to make decision	62	Yes
Cohort	47329	Yes	Yes	Surgery planned	38	Yes
Self Referral	56086	Yes	Yes	Other specified	100	Yes
Self Referral	58444	Yes	Yes	Further investigation required to make decision	54	Yes
Self Referral	91273	Yes	Yes	Further investigation required prior to surgery	36	Yes

Denominator: Count the number of unique confidential IDs where referral appropriate is "Yes", "Not known" or blank.

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Standard	12: Percentage of subjects with AAA ≥5.5cm deemed fit for intervention operated on within 8 weeks
Objective	To ensure high quality and timely intervention
Criteria	Timely treatment/ intervention by specialist
SMaRT report query	= (Count ([Specialist Assessments].[Confidential ID]) Where ([Time to Surgery (Days)] <=56) / Count([Specialist Assessments].[Confidential ID];Distinct) Where ([Unfit/declined surgery]="No" And [Inappropriate referral]="No")) * 100
Numerator	Number of men referred whose surgery date was within 8 weeks of the last attended appointment
Denominator	Number of men appropriately referred where specialist outcome is not "surgery declined" or "unfit for surgery"
Simplified Calculation	$= \dfrac{\text{Number of men operated on within 8 weeks}}{\text{Total men appropriately referred deemed fit for surgery and not declining}} \times 100$
Mitigations/ qualifications	There may be variation between the pathway standards report and the live SMaRT system due to changes to the data on SMaRT since the day the data were extracted. Referrals will include self referrals and cohort men referred from initial screen or surveillance.
Reporting period	Screening year of requested date of referral
Validation/ checks	The confidential ID for each of the referrals is available in the Referrals – Confidential IDs tab of the report. Please note that there may be duplicate lines for the ID number, which is caused by the time to surgery field. Note the record will only be counted once in the table. You may wish to cross reference the information with your tracker. **Numerator:** Count the number of cases with a time to surgery (days) of less than or equal to 56. **Denominator:** Count the number of unique confidential IDs where referral appropriate is "Yes", "Not known" or blank and the specialist assessment outcome is not "Unfit for surgery" or "Surgery declined".

Validation table

Programme name

Time period

Ref	Metric		Quality Standards Data Report			Programme calculated					Queries run by programme	Comments
			Numerator	Denominator	Percentage	Numerator	Denominator	Percentage	% -5%	% +5%		
1a	% of eligible subjects who are offered initial screen	Total										
1bi	% of eligible subjects who are offered surveillance screen - annual	Total										
1bii	% of eligible subjects who are offered surveillance screen - quarterly	Total										
2a	% of eligible subjects who are tested: initial screen	Total										
2bi	% of eligible subjects who are tested: surveillance screen - annual	Total										
2bii	% of eligible subjects who are tested: surveillance screen quarterly	Total										
3	% of subjects not responding to first offer to whom a second offer is made within screening year plus 3	Total										
4a	% of subjects offered screening who are tested: initial offer	Total										
4bii	% of subjects offered screening who are tested: surveillance offer - annual	Total										
4bii	% of subjects offered screening who are tested: surveillance offer - quarterly	Total										
5	% of assessed images of acceptable quality											
6	% of inaccurate calliper placements											
7	% screening encounters where aorta could not be visualised	Total										
8	% incomplete screening episodes	Total										
9	% of subjects with AAA ≥5.5cm referred within one working day	Total (all patient types)										
10	% of those subjects who have received confirmatory CT or MRI scan found to have AAA ≤ 5.5cm	Total (all patient types)										
11	% of subjects with AAA ≥5.5cm by vascular specialist within 2 weeks	Total (all patient types)										
12	% of subjects with AAA ≥5.5cm deemed fit for intervention operated on within 8 weeks	Total (all patient types)										