



Public Health
England



NHS Abdominal Aortic Aneurysm Screening Programme

Clinical guidance and scope of practice
for professionals involved in the provision
of the ultrasound scan within AAA
screening

Public Health England leads the NHS Screening Programmes

About Public Health England 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 4 UK countries. The Screening Quality Assurance Service (SQAS) ensures programmes are safe and effective by checking that national standards are met.

Public Health England (PHE) leads the NHS Screening Programmes and hosts the UK NSC secretariat. PHE is an executive agency of the Department of Health and exists to protect and improve the nation's health and wellbeing, and reduce health inequalities.

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Introduction

The main aim of the NHS Abdominal Aortic Aneurysm Screening Programme (NAAASP) is to reduce aneurysm-related mortality through the early detection, appropriate monitoring and treatment of aortic aneurysms. NAAASP invites men for an abdominal ultrasound scan during the year they turn 65. The screening scans are performed by qualified screening technicians who follow a scanning protocol developed by NAAASP. This requires measurement of the aorta in transverse and longitudinal planes.

This document provides information about the screening test performed by screening technicians and accredited sonographers in NAAASP.

It provides a clear and defined protocol and framework for the screening test to help maintain consistency and a standard test for all men undergoing screening or surveillance within NAAASP. This document also outlines the scope of practice for screening technicians; they are expected not to scan outside the remit of these guidelines.

Clinical skills trainers (CSTs), QA leads and programme co-ordinators should use this document to help guide and support screening technicians during their initial training and as a reference tool for their professional development and on-going quality assurance.

It is suggested that this document is used in conjunction with/incorporated within a local operating procedure in-line with national protocols and standard operating procedures.

Accommodation requirements

Appropriate consideration needs to be taken when deciding on accommodation to provide screening within NAAASP. Appropriate risk assessments and any associated actions should be in place before starting screening at any location to ensure equity of access to screening, safety of men and screening staff and to reduce the possible risk of work related upper limb disorders.

This should include, but is not limited to:

- adjustable lighting within clinical rooms
- height adjustable examination couch
- consideration to alteration of room temperature if required
- suitable operator chair if necessary
- suitable hand washing facilities
- appropriate parking and/or access to public transport for attendees and staff
- sufficient power points
- N3 connectivity

Height adjustable examination couches

It is recommended that all clinic locations for screening within NAAASP use height adjustable examination couches when performing ultrasound scans. Local screening programmes need to ensure equity of access to screening for all men. Non-height adjustable couches can limit access for men who are less mobile and those who may need to transfer from a wheelchair.

The use of non-height adjustable couches has the potential to increase the risk of injury and work-related upper limb disorders to screening technicians as they are unable to position the man at an appropriate height for the assessment.

The use of non-height adjustable examination couches in screening clinic locations is not recommended in the NHS Abdominal Aortic Aneurysm Screening Programme.

Consent

Consent for the screening procedure, information retention and potential contact for research purposes needs to be performed for every man prior to screening. Consent is undertaken via the national IT solution SMaRT (screening management and referral tracking). The 'How we use patient data' document should be used when consenting men to have screening.

Positioning the man for screening

The man to be screened needs to be able to transfer and lie supine independently. If this is not possible then alternative arrangements need to be available within the screening programme to accommodate these men. This may involve screening at a different site with hoists and appropriate transfer equipment and staff available. Screening technicians must not attempt to lift or transfer men in screening locations without suitable equipment or training.

Screening technicians should only scan men in NAAASP using the longitudinal section (LS) and transverse section (TS) imaging planes with the man in the supine position. At no time should the man be asked to turn on their side or the couch tilted up; this is to maintain the supine position. Technicians are advised that a slight sideways/oblique angle may be used to try to avoid bowel gas/aid imaging but beyond this, if an aorta is non-visualised in the supine position from an anterior approach, the technicians should refer the man for a re-scan. If on the second attempt, the aorta is non-visualised, then the man should be referred to the medical imaging department or vascular lab as per NAAASP protocols. The operator doing this re-scan will be highly trained and experienced. This would be either a CST, clinical vascular scientist or a senior sonographer within the medical imaging department, who may then employ different techniques and will also have imaging optimisation methods for the ultrasound machine within their department.

The scan

Survey scan

A survey scan in both LS and TS should be performed scanning the length of the abdomen and to identify the aorta and appropriate landmarks. No measurements should be taken until the aorta has been imaged in a transverse and longitudinal plane to ensure that the vessel angulation has been taken into consideration.

Technicians can have the probe positioned in an LS or TS position to initiate the test; this is dependent on local policy. Sufficient ultrasound gel should be used to ensure appropriate contact with the abdomen.

Identification of the aorta

The aorta needs to be clearly identified and differentiated from the inferior vena cava (IVC) and surrounding landmarks.

NAAASP requires the aorta to be differentiated from the IVC by the presence of anterior branches (coeliac axis and superior mesenteric artery) and thicker walls than the IVC. The aorta is usually the vessel on the left hand side of the man and is also non-compressible. Technicians should use these features during every examination to ensure correct identification of the aorta. Anterior branches may not be visible in every man. If the presence of anterior vessels is being used as a method to identify the aorta then the origins of these vessels must be imaged.

The aorta must be assessed from the proximal extent of the supra renal abdominal aorta (at the level of the xiphisternum) to the level of the aortic bifurcation (approximately at the level of the umbilicus).

Figure 1 Anatomy of the abdominal aorta

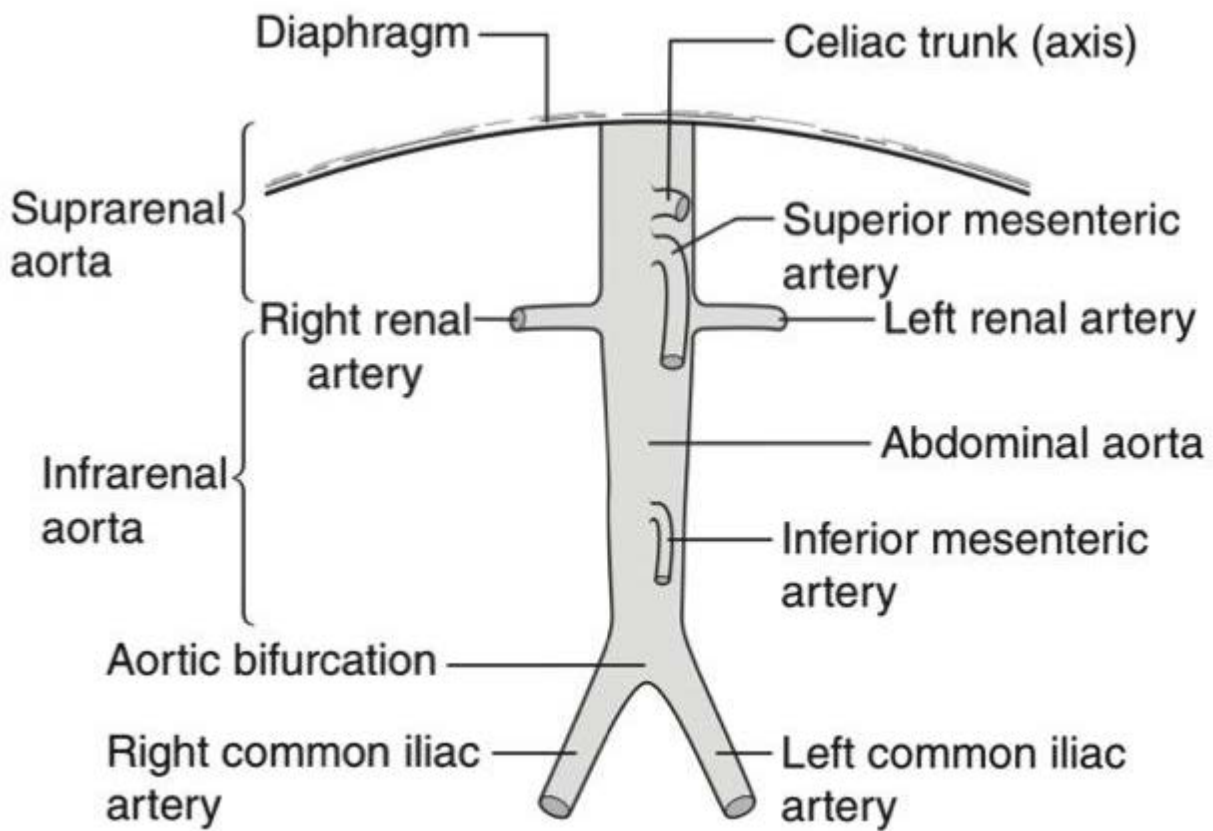


Image optimisation

Prior to obtaining a measurement screening technicians should optimise every image to ensure accuracy and quality of measurements. Technicians need to understand how the individual image optimisation controls work in relation to image quality and basic physical principles as outlined in the initial training and re-accreditation provision.

The image optimisation controls that screening technicians can utilise and must have an awareness of are:

- frequency
- depth
- gain
- time gain compensation
- harmonic imaging
- dynamic range
- focus/focal zone position
- number of focal zones
- sector width
- compound imaging
- edge enhancement

Measuring the aorta

Once the aorta has been correctly identified and the vessel angulation has been taken into account, two anterior posterior (AP) measurements of the maximum aortic diameter should be recorded and measured across the lumen from the inner anterior wall to inner posterior wall of the ultrasound-detected aorta, one with the probe in the longitudinal plane and one with the probe in the transverse plane.

The aorta must be measured perpendicular to the vessel walls i.e. at right angles to the walls, see figure 2.

Inaccurate angulation/measurements and subsequent placement of the callipers can lead to over and under measurement of the vessel diameter; this could lead to false positive and false negative results for the man.

Figure 2 Measurement of the abdominal aorta

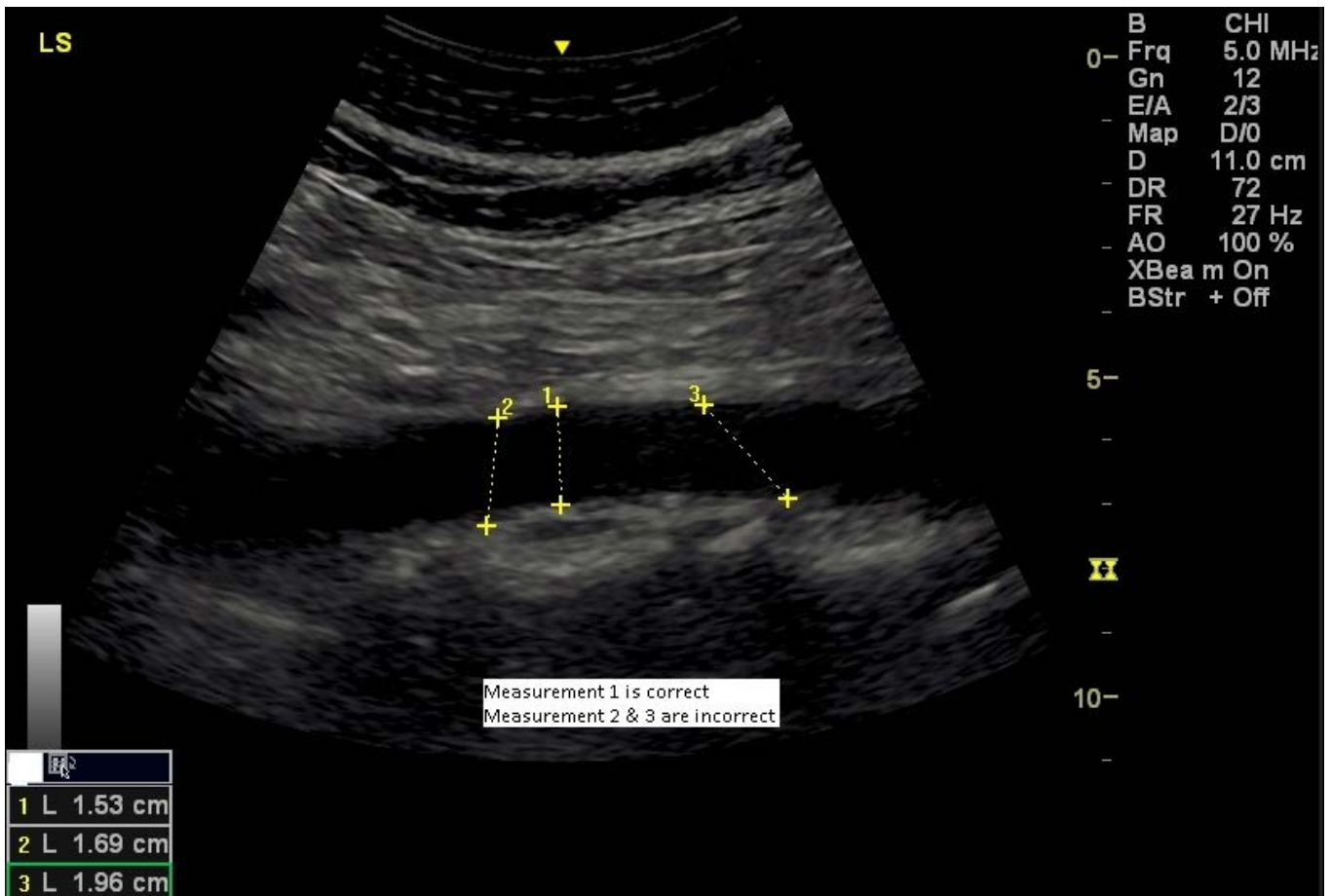


Image capture

A minimum of two images must be taken and saved in-line with national and local protocols.

The minimum requirements are as follows:

The maximum transverse (internal anterior wall to internal posterior wall) diameter of the aorta should be measured and an image recorded and stored. As a landmark, the image should demonstrate the lumbar spine. Ideally, the image should be annotated to demonstrate the scan orientation, for example 'TS' or 'transverse'.

The maximum longitudinal (internal anterior wall to internal posterior wall) diameter of the aorta should be measured and the image stored. As a landmark, the image should include part of the lumbar spine; ideally the image should be annotated to demonstrate orientation.

Annotation requirements should be determined locally.

Non-visualisation

A separate policy regarding **Non-visualisation of the Aorta within NAAASP** is available. A clearly defined and robust procedure must be in place locally to ensure all non-visualised men receive screening in a timely manner.

Length of examination

The length of the examination and the screening appointment is a local decision based on a number of issues such as the number of, and experience of, screening technicians, cohort remaining, and local attendance and DNA rates. Local programmes should also give consideration to reducing the risk of work-related upper limb disorders when determining the timings of appointment slots in clinics.

Scope of practice

The scope of practice for screening technicians within NAAASP is the identification and differentiation of the abdominal aorta and the inferior vena cava from the level of the xiphisternum to the level of the aortic bifurcation with the subsequent measurement of the abdominal aorta at its widest point.

Incidental findings

A local policy which outlines the process incidental findings should be in place. Screening technicians are not expected or required to measure or identify any other structures, pathology or physiology within the abdomen that is not outlined in this document.

Occasionally screening technicians may observe anatomy that may appear unusual or different from their scope of practice. In cases like these technicians should report these as incidental findings within SMaRT.

Screening technicians should add additional comments to the incidental finding box within the reporting software and if required request a QA review. The CST/QA lead will review any additional images taken and decide the appropriate course of action. If further investigation or follow up is required this falls outside of the remit of NAAASP, therefore the programme should contact the man's general practitioner suggesting the appropriate course of action. A copy of the communication should be sent to the clinical director of the programme.

As a failsafe measure the provider should ensure that the communication has been received by the GP practice. Confirmation of this can be recorded within SMaRT inside the comments box for the specific patient record.

The local provider is not responsible for ensuring that any advice is actioned by the general practitioner.

If the proximal abdominal aorta appears aneurysmal as an extension of a more proximal thoracic aortic aneurysm the visible aorta should be measured accurately at its widest point as per usual protocol. The incidental findings policy should then be followed for further investigation of any suspected thoracic aortic aneurysm. The man should remain within the screening programme with appropriate surveillance until informed otherwise via the clinical director.