

**NHS GRAMPIAN, NHS ORKNEY & NHS
SHETLAND COLLABORATIVE**

**ABDOMINAL AORTIC ANEURYSM (AAA)
SCREENING PROGRAMME**

**ANNUAL REPORT NOVEMBER 2013
TO OCTOBER 2014**

Prepared by:

Mrs Alison Mundie
AAA Screening Programme Manager, Aberdeen Royal Infirmary
NHS Grampian

Executive Summary

This is the second year's Annual Report of the Grampian, Orkney and Shetland Collaborative Abdominal Aortic Aneurysm (AAA) Screening Programme. The Collaborative covers a large geographical and demographic area with populations of approx 584,000 (Grampian), 21,000 (Orkney) and 23,000 (Shetland). The National AAA Screening Programme reached full national roll out in August 2013. The Grampian, Orkney and Shetland Collaborative launched its Programme on 25 October 2012.

The Programme has continued throughout its second year to build on the successes of its inaugural year.

During our first two years of AAA screening across the Collaborative 12,238 men were offered screening, 10,710 accepted the offer and 191 men with AAA were identified (prevalence 1.8 per 1,000 men screened). Across the AAA Collaborative uptake continues to achieve a high level at 87% (Grampian 87%; Orkney 81% and Shetland 87%).

A total of 488 self-referring men (aged > 65 years) were screened and these comprised 3.99% (488/12,238) of all men offered screening.

Overall 176 men entered surveillance and 15 men were referred to Vascular Services at Aberdeen Royal Infirmary (ARI), this included 3 surveillance participants who were found to have a large aneurysm at their surveillance appointment.

Of the 15 men referred to ARI, 8/15(53%) men received specialist assessment within 10 working days. All 15 referrals have now undergone surgery and 8/15(53%) were operated on within 40 working days. They all survived surgery (11 EVAR elective surgeries [this includes a fenestrated EVAR]) and 4 open surgeries. All 15 men have survived for 30 days or more post surgery.

During our first two years audits were undertaken, published and presented at conferences:

Initial Experience of Abdominal Aortic Aneurysm (AAA) Screening in Grampian

Presented at:

- Annual Faculty of Public Health Conference, Dunblane, Scotland (November 2013),
- CPD Meeting for NHS Grampian's Public Health Department, Aberdeen (February 2014), and
- Scottish Vascular Group Meeting, Dunblane, Scotland (March 2014)

Factors Associated with the Uptake of Abdominal Aortic Aneurysm Screening by Men Living in Urban and Rural Areas of North East Scotland

Presented at:

- Annual Faculty of Public Health Conference, Aviemore, Scotland (6th & 7th November 2014), and
- NAAASP Research Meeting (NHS Abdominal Aortic Aneurysm Screening Programme) at Manchester University (9th February 2015).

Publications:

BJS, Volume 102, issue 8 (July 2015) (<http://www.bjs.co.uk/details/article/8024451/Influence-of-rurality-deprivation-and-distance-from-clinic-on-uptake-in-men-invi.html>)

Repeatability of Abdominal Aortic Aneurysm Screening by Nurses in the Scottish National Programme

Presented at:

- NAAASP Research Meeting (NHS Abdominal Aortic Aneurysm Screening Programme) at Manchester University (9th February 2015).

For further information on all of the above studies contact Dr Mike Crilly (mike.crilly@abdn.ac.uk)

Dr Mike Crilly, Senior Lecturer in Clinical Epidemiology

Programme Contacts

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| <p>NHS Grampian Collaborative Programme Manager:</p> <p>Mrs Alison Mundie Room 4.34, Ashgrove House Aberdeen Royal Infirmary Foresterhill Aberdeen Tel: 01224 553905 or 550825 Email: alison.mundie@nhs.net</p> | <p>NHS Grampian Collaborative Clerical Assistant:</p> <p>Miss Mhairi King Room 4.35, Ashgrove House Aberdeen Royal Infirmary Foresterhill Aberdeen Tel: 01224 553905</p> |
| <h3><u>Key Personnel</u></h3> | |
| <p>NHS Grampian Programme Co-ordinator:</p> <p>Dr Mike Crilly Senior Lecturer in Clinical Epidemiology University of Aberdeen Medical School</p> | <p>NHS Grampian Collaborative Clinical Lead:</p> <p>Mr Paul Bachoo Vascular Clinical Lead and Consultant Vascular Surgeon Aberdeen Royal Infirmary</p> |
| <p>NHS Shetland Programme Co-ordinator:</p> <p>Dr Susan Laidlaw Consultant in Public Health Medicine Gilbert Bain Hospital, Lerwick</p> | <p>NHS Orkney Programme Co-ordinator:</p> <p>Dr Kenneth Black Consultant in Public Health Medicine Balfour Hospital, Kirkwall</p> |
| <p>NHS Grampian & NHS Orkney Lead Sonographer:</p> <p>Mrs Linda Sleigh Vascular Scientist Aberdeen Royal Infirmary</p> | <p>NHS Grampian & NHS Orkney Screening Nurses</p> <p>Mrs Penny Bruce Mrs Fiona Colvin Ms Wendy Geddes Miss Hazel Smart All based at Aberdeen Royal Infirmary</p> |
| <p>NHS Shetland Lead Sonographer:</p> <p>Lucy Wilson Radiographer/Sonographer Gilbert Bain Hospital, Lerwick</p> | <p>NHS Shetland Sonographers:</p> <p>Lucy Wilson Inga Tulloch Both based at Gilbert Bain Hospital, Lerwick</p> |

Introduction

This is the second year's Annual Report of the Grampian, Orkney and Shetland Collaborative Abdominal Aortic Aneurysm (AAA) Screening Programme. It should be noted that the Key Performance Indicators (KPI's) referred to throughout this report are not officially in operation although we have benchmarked our figures against the anticipated KPI's.

The report aims to demonstrate the achievements during the first two year's of the Programme by the Grampian, Orkney and Shetland Collaborative. The Programme has continued throughout its second year to build on the successes of its inaugural year and has achieved almost all of the key performance indicators.

The National AAA Screening Programme reached full national roll out in August 2013. The Grampian, Orkney and Shetland Collaborative launched its Programme on 25 October 2012. The Collaborative covers a large geographical and demographic area with populations of approx 584,000 (Grampian), 21,000 (Orkney) and 23,000 (Shetland), with the Grampian team travelling to Orkney on a quarterly basis to scan eligible participants and the Shetland team scanning their own eligible participants. The aim of the programme is to detect AAA's early and monitor or treat them. This greatly reduces the chance of an aneurysm rupturing and causing serious problems.

Aneurysms are commonest in men, and are associated with smoking, high cholesterol and high blood pressure. AAA's are often asymptomatic and the first sign of any problem will be when they rupture, which is often fatal.

An invitation to attend for screening is sent to all men aged 65 and men aged 66 and over can self-refer. A scan will be taken using a portable ultrasound machine to measure the diameter of the aorta, the results of which are available to the participant at the point of testing. Depending on the result will dictate the pathway to be followed.

Screening Outcomes

Based on the results of the participants abdominal ultrasound scan they follow the appropriate pathway:

Normal - Men with an AAA < 2.9 cm

A normal result means that the aorta is not enlarged and there is no aneurysm. Men with a normal result are discharged from the Programme with no further recall as no treatment or monitoring is required. No further invites will be sent to the participant. The GP is not informed of the result.

Small Aneurysm - Men with a small AAA > 3.0 cm - < 4.4 cm

If a small aneurysm is found participants are monitored by the Programme and invited to return for a yearly surveillance scan.

Medium Aneurysm - Men with a medium AAA > 4.5 cm to < 5.4 cm

If a medium aneurysm is found participants are monitored by the Programme and invited to return for a quarterly surveillance scan.

Large Aneurysm - Men with a large AAA > 5.5 cm

If a large aneurysm is found participants are referred to Vascular Services for rapid surgical assessment and discussion of treatment options at Aberdeen Royal Infirmary. Detected early a large aneurysm may be repaired by elective surgery with lower associated mortality.

Screening Locations

The Programme continued to use the following sites within Grampian during the year 2013/14:

Hospitals:

Aberdeen Royal Infirmary, Woodend (Aberdeen) and Dr Gray's (Elgin)

Community Hospitals:

Aboyne, Chalmers (Banff), Jubilee (Huntly), Leancoil (Forres), Kincardine (Stonehaven), Peterhead

During the second year the Programme began holding clinics in the following sites:

Aberdeen Health Village, which has proved very successful, this is more convenient for participants due to its central location within Aberdeen

Fraserburgh Community Hospital. We held a small number of clinics in Fraserburgh to ascertain whether or not this location would be more convenient for Banff & Buchan participants and we are hopeful to continue with this location during the coming year.

Programme Performance Activity/Uptake

1. Invitation and Attendance

National Screening Programme Key Performance Indicators for Invitation and Attendance

| Patient Journey | Topic | Quality Measure | Essential (E) and Desirable (D) Criteria |
|------------------------------|----------------------------|--|--|
| 1. Invitation and Attendance | CORE Completeness of offer | 1.1 % of eligible population who are sent an initial offer to screening | 90% E 100% D |
| | | 1.2 % of subjects offered screening who are tested. Statistics to be broken down by Scottish Index of Multiple Deprivation (SIMD). | |
| | Acceptance of Offer | 1.3 % of subjects offered screening who are tested | 70% E 85% D |
| | | 1.4 % of subjects who attend for surveillance (quarterly and yearly data) | 90% E 100% D |

| Core Completeness of Offer - 1.1 | | | | | |
|----------------------------------|-----------------------------------|---------------------------------------|------------------|--|--|
| NHS Board | Allocation - Oct 2012 to Oct 2014 | Self Referrals - Oct 2012 to Oct 2014 | Total Allocation | Total Offered Screening - Oct 2012 to Oct 2014 | Percentage Offered [KPI:90%(E) ¹ , 100%(D) ²] |
| Collaborative (all 3 boards) | 12496 | 488 | 12984 | 12238 | 94.25% (12238/12984) |
| Grampian | 11435 | 401 | 11836 | 11189 | 94.53% (11189/11836) |
| Orkney | 518 | 76 | 594 | 505 | 85.02% (505/594) |
| Shetland | 543 | 11 | 554 | 544 | 98.19% (544/554) |

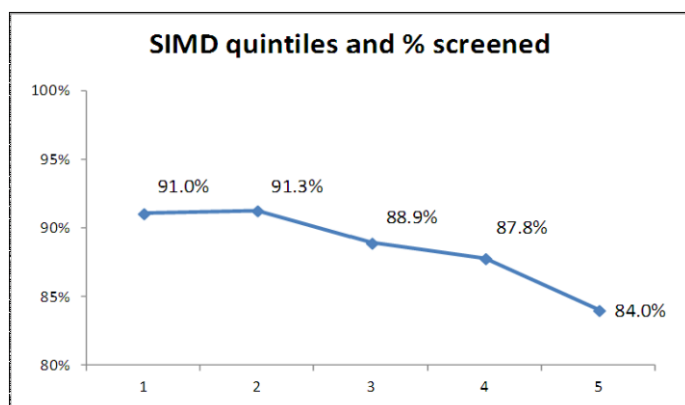
¹ Essential Key Performance Indicator

² Desirable Key Performance Indicator

Throughout our first year demand exceeded our available capacity and the team have worked extremely hard during the two years since inception of the Programme to achieve the invitation KPI with the result that Grampian(94.53%) and Shetland(98.19%) have met the essential criteria for this KPI. Although Orkney(85.02%) did not meet this KPI the team have made significant inroads since last year's Annual Report when Orkney achieved 56.3%. It should also be noted that Orkney did receive a large number of self referrals which proved challenging for the team. We would anticipate that Orkney will meet this KPI for the next Annual Report (2014/2015).

Acceptance of Offer – 1.2 (NHS Grampian – Uptake by Deprivation)

The data for this reporting year cannot be provided at this time. In the future this information will be supplied by ISD. However we have included the data from our 2012/13 Annual Report.



We took all the Grampian men invited for screening and analysed uptake by their SIMD (Scottish Index of Multiple Deprivation) scores into 5 quintiles with the 1st quintile being the most affluent and the 5th quintile being the most deprived. The chart indicates that our most deprived areas have the lowest uptake (84%), with the two most affluent quintiles showing very similar uptakes (91%).

| Core Uptake (Initial) - 1.3 [Period Oct 2012 to Oct 2014] | | | |
|--|--------------------------------|----------------------------|---|
| NHS Board | Total Offered Screening | Acceptance of Offer | Percentage Uptake [KPI:70%(E)¹, 85%(D)²] |
| Collaborative (all 3 boards) | 12238 | 10710 | 87.51% (10710/12238) |
| Grampian | 11189 | 9822 | 87.78% (9822/11189) |
| Orkney | 505 | 413 | 81.78% (413/505) |
| Shetland | 544 | 475 | 87.32% (475/544) |

¹ Essential Key Performance Indicator

² Desirable Key Performance Indicator

All 3 Boards achieved the essential KPI for uptake Grampian(87.78%), Orkney(81.78%) and Shetland(87.32%), with Grampian and Shetland also achieving the desirable criteria.

| Number of NHS Grampian Collaborative Participants Invited/Number of Participants Screened Per Screening Location | | | | |
|---|-------------------------------|--------------------|------------------------------|-----------------|
| | Locations | No. Invited | Screened After Invite | % Uptake |
| | Woodend | 4286 | 3660 | 85.4% |
| | Health Village | 372 | 368 | 98.9% |
| | Aboynae Hospital | 624 | 534 | 85.6% |
| | Chalmers Hospital | 1080 | 980 | 90.7% |
| | Dr Grays | 776 | 672 | 86.6% |
| | Fraserburgh Hospital | 10 | 7 | 70.0% |
| | Inverurie Hospital | 257 | 223 | 86.8% |
| | Jubilee Hospital | 1311 | 1170 | 89.2% |
| | Kincardine Hospital | 594 | 547 | 92.1% |
| | Leanchoil Hospital | 590 | 501 | 84.9% |
| | Peterhead | 1289 | 1160 | 90.0% |
| | Orkney | 505 | 413 | 81.8% |
| | Shetland | 544 | 475 | 87.3% |
| | Grampian Collaborative | 12238 | 10710 | 87.5% |

The number of participants invited does not include those sent invitations in October 2014 as the majority of these participants had appointments during the month of November 2014 which falls within the next reporting period. Our highest uptake was The Health Village (98.9%) and our lowest was Fraserburgh (70%). The uptake in Fraserburgh does not give a true reflection of the situation due to the low numbers reported. During our second year it was decided that the Elgin/Forres cohort should be seen at Dr Grays (Elgin) and we no longer screen in Forres. Fraserburgh was a new screening location for the Programme during our second year..

Detected Aneurysms

| Aneurysms Detected (October 2012 to October 2014) | | | | | | | |
|--|-------------------------------------|-----------------------|--------------|---------------|--------------|---|--|
| NHS Board | Number of Aneurysms Detected | Detection Rate | Small | Medium | Large | Surveillance Participants Referred to Vascular | Detected Aneurysms Referred to Vascular (%) |
| Collaborative (all 3 Boards) | 191 | 1.78% (191/10710) | 159 | 20 | 12 | 3 | 7.85% (15/191) |
| Grampian | 173 | 1.76% (173/9822) | 146 | 18 | 9 | 3 | 6.94% (12/173) |
| Orkney | 10 | 2.42% (10/413) | 7 | 0 | 3 | 0 | 30.00% (3/10) |
| Shetland | 8 | 1.68% (8/475) | 6 | 2 | 0 | 0 | 0.00% (0/8) |

During the first two years the Collaborative detected a total of 191 aneurysms, 12 of which were large, 20 medium and 159 small. The Programme referred a total of 15 participants to Vascular Services,

this included 3 surveillance participants who were found to have a large aneurysm at their surveillance follow up appointments.

| Detected Aneurysms by Screening Location (October 2012 to October 2014) | | | | | | |
|---|------------------------------|------------|-----------|-----------|--------------------------|----------------|
| | No. of Participants Screened | Small | Medium | Large | Total Aneurysms Detected | Prevalence (%) |
| Grampian | | | | | | |
| Health Village | 368 | 7 | 1 | 0 | 8 | 2.17% |
| Woodend | 3660 | 62 | 7 | 5 | 74 | 2.02% |
| Aboyne | 534 | 7 | 2 | 0 | 9 | 1.69% |
| Chalmers | 980 | 9 | 0 | 1 | 10 | 1.02% |
| Fraserburgh | 7 | 1 | 0 | 0 | 1 | 14.29% |
| Inverurie | 223 | 5 | 3 | 0 | 8 | 3.59% |
| Jubilee | 1170 | 15 | 2 | 1 | 18 | 1.54% |
| Kincardine | 547 | 8 | 1 | 0 | 9 | 1.65% |
| Peterhead | 1160 | 14 | 1 | 1 | 16 | 1.38% |
| Dr Grays | 672 | 10 | 1 | 0 | 11 | 1.64% |
| Leancoil | 501 | 8 | 0 | 1 | 9 | 1.80% |
| | 9822 | 146 | 18 | 9 | 173 | 1.76% |
| Orkney | 413 | 7 | 0 | 3 | 10 | 2.42% |
| Shetland | 475 | 6 | 2 | 0 | 8 | 1.68% |
| Totals | 10710 | 159 | 20 | 12 | 191 | 1.78% |

From the 191 aneurysms detected the Screening Location with the lowest prevalence is Chalmers, Banff with a 1.02% prevalence. The Screening Location with the highest prevalence is Fraserburgh (14.29%) but this figure does not give a true reflection of the situation due to the low numbers reported.

All surveillance men (100%) within the Collaborative who were offered a surveillance scan have attended for their follow up scans resulting in all 3 Boards achieving the desirable criteria for KPI 1.4 (90% Essential, 100% Desirable).

Detected Aneurysms by Eligible Cohort/Self Referrals

| | Eligible Cohort | Eligible Cohort - Prevalence (%) | Self Referrals | Self Referral - Prevalence (%) |
|---------------------------------|-----------------|----------------------------------|----------------|--------------------------------|
| Surveillance - 12 months | 146 | 1.43% | 13 | 2.66% |
| | | (146/10222) | | (13/488) |
| Surveillance - 3 months | 18 | 0.18% | 2 | 0.41% |
| | | (18/10222) | | (2/488) |
| Referrals to Vascular | 9 | 0.09% | 3 | 0.61% |
| | | (9/10222) | | (3/488) |
| Totals | 173 | 1.69% | 18 | 3.69% |
| | | (173/10222) | | (18/488) |

From the 191 aneurysms detected 173(1.69%) were from participants within the eligible cohort (173/10,222) and 18(3.69%) were from self referrals (18/488).

Clinical Governance

2. Minimising Harm - Quality of Scan/Images

National Screening Programme Key Performance Indicators for Minimising Harm

| <u>Patient Journey</u> | <u>Topic</u> | <u>Quality Measure</u> | <u>Essential (E) and Desirable (D) Criteria</u> |
|------------------------|--|---|---|
| 2. Minimising Harm | Quality of scan/images/samples/testing technique | 2.1 % of screening encounters where aorta could not be visualised | <3% E < 1% D |
| | | 2.2 % accurate calliper placement, determined by review of static image | <96% E <99% D |

| <u>% of screening encounters where aorta could not be visualised) – 2.1</u> | | | | |
|--|---|----------------------|--|--|
| Number of participants screened (Grampian, Orkney & Shetland) | Non visualisation at <u>first</u> scan | % Performance | Non visualisation at <u>return</u> scan | % Performance [KPI: <3%(E), <1%(D)] |
| 10710 | 14 | 0.13% (14/10710) | 7 | 0.07% (7/10710) |

The Collaborative achieved the desirable criteria for this KPI. From a total of 10710 screened participants 14(0.13%) had a “fail to scan” outcome on their first scan and 7(0.07%) on their return scans. The 7 participants who had a “fail to scan” after their second appointment were discharged from the Programme back to their GP.

Results - % calliper placement, determined by review of static image – 2.2

| | Total QA'd | Total Failures | QA Anatomy | QA Angle | QA Calliper | QA Image Quality | % Failures that are Calliper Placement [KPI: <96%(E), <99%(D)] |
|------------------------------|------------|----------------|------------|----------|-------------|------------------|--|
| Collaborative (all 3 Boards) | 1036 | 62 | 2 | 45 | 2 | 13 | 99.8% (1034/1036) |
| NHS Grampian | 928 | 62 | 2 | 45 | 2 | 13 | 99.8% (926/928) |
| NHS Orkney | 60 | 0 | 0 | 0 | 0 | 0 | 100.0% (60/60) |
| Shetland NHS Board | 48 | 0 | 0 | 0 | 0 | 0 | 100.0% (48/48) |

During the first two years of the Programme 1036 images were quality assured by our Lead Screeners. Of those there were 2(0.2%) which were quality assured for calliper placement. The desirable criteria for this KPI was met by all 3 Boards.

Nurse Screeners

During our second year one of our nurse screeners resigned and throughout the recruitment process we were unable to work at full capacity at all screening locations.

We have now recruited another nurse screener and all 4 nurse screeners have completed, in full, the Specialised Ultrasound Course in AAA Screening at Glasgow Caledonian University and obtained their accreditations by the Summer of 2014. As part of the accreditation process they were required to gather their evidence based portfolios, their knowledge and practical abilities were assessed both practically and through discussion with the Lead Sonographer, assessments in the work place took place and reflective pieces were written and discussed.

Their images continue to be quality assured by the Lead Sonographer. All QA images are assessed and checked for various aspects of their measurements. The images can be passed or failed and a recommendation placed for further scanning. Incidental findings are also sent to the Lead Sonographer. These are discussed with Mr Paul Bachoo, Clinical Lead.

Our nurse screeners continue to develop their knowledge and skills both as nurses and screeners within the AAA Programme environment which they utilise as AAA Screening Nurses. The Screening Nurses continue to use each other for support alongside the Lead Sonographer/Clinical Vascular Scientist.

Our Sonographer in Shetland also obtained her accreditation in December 2013.

Our team of nurse screeners/sonographers are committed to delivering a high quality service to all our participants throughout Grampian, Orkney and Shetland who are invited to attend the Programme

Results

3. Timely availability of results

National Screening Programme Key Performance Indicators for Results

| <u>Patient Journey</u> | <u>Topic</u> | <u>Quality Measure</u> | <u>Essential (E) and Desirable (D) Criteria</u> |
|------------------------|---------------------------------------|---|---|
| 3. Results | Timely availability of <u>results</u> | 3.1 % <u>results communicated</u> on the same day | 97% E 99% D |

All results are given verbally to participants at the time of their appointment with a written letter being sent to them within a couple of days of their appointment. Consequently timely availability of results is 100% across the Collaborative.

Referrals to Vascular Services - Outcomes

During the second year of the Programme there were 6 aneurysms ≥ 5.5 cm referred to Vascular Services at Aberdeen Royal Infirmary from the Grampian, Orkney and Shetland Collaborative (4 from Grampian and 2 from Orkney). A total of 15 participants during the first two years of the Programme were found to have an aneurysm ≥ 5.5 cm which required a referral to Vascular Services. Three of the referrals were the result of a participant attending for a surveillance scan.

| <u>Grampian Collaborative Detected Large Aneurysms by Screening Location</u> | |
|---|--|
| <u>Screening Location</u> | <u>Number of Aneurysms Detected</u> |
| Aboyne Community Hospital, Aboyne | 1 |
| Balfour Hospital, Orkney | 3 |
| Chalmers Hospital, Banff | 1 |
| Jubilee Hospital, Huntly | 1 |
| Leancoil Hospital, Forres | 2 |
| Peterhead Community Hospital, Peterhead | 1 |
| Woodend Hospital, Aberdeen | 6 |

4. Referral for assessment/treatment

National Screening Programme Key Performance Indicators for Referral to Vascular Services

| <u>Patient Journey</u> | <u>Topic</u> | <u>Quality Measure</u> | <u>Essential and Desirable Criteria</u> |
|--------------------------------------|--|--|---|
| 4. Referral for assessment/treatment | CORE Timely treatment/intervention by specialist, measures from first positive scan/referral | 4.1 % of <u>subjects</u> with AAA ≥ 5.5 cm seen by vascular specialist within ten working days of referral | 75% E 95% D |
| | | 4.2 % of <u>subjects</u> with AAA ≥ 5.5 cm deemed appropriate for intervention/operated on by vascular specialist within forty working days of referral | 60% E 80% D |

4.1 - % seen by vascular specialist within 10 days**53.3% (8/15)**

Of the 8 men who were seen within 10 working days, 3(37.5%) were admitted on the same day/next day to Vascular Services, 1(12.5%) had a telephone consultation with a Vascular Consultant and 4(50%) were seen at an Out Patient Clinic by a Vascular Consultant.

Of the 7(46.7%) men who were not seen within 10 working days, 4(57.1%) were seen at an Out Patient Clinic by a Vascular Consultant at 15,17, 19 and 45 days after date of referral, 2(28.6%) commenced their tests prior to being seen by a Vascular Consultant and 1(14.3%) was already known to Vascular Services.

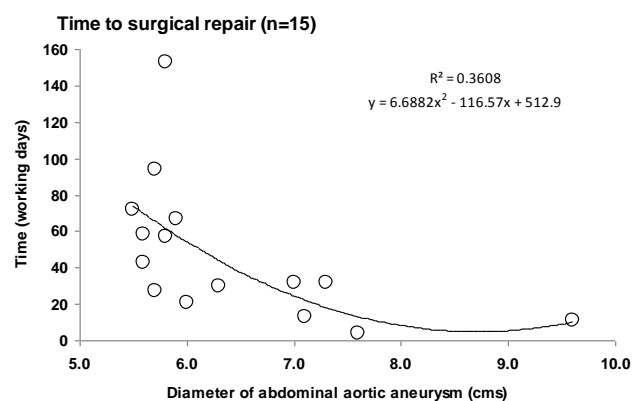
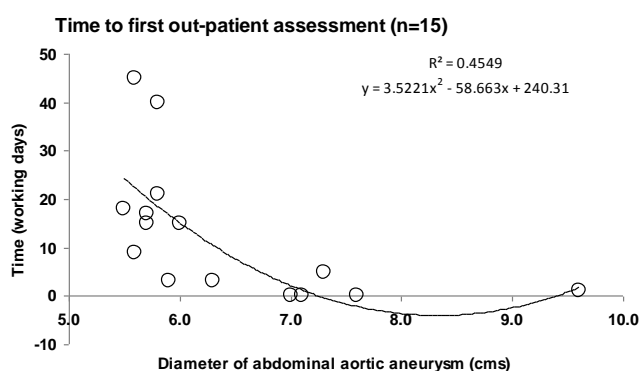
4.2 - Intervention/operated on within 40 working days of referral**53.3% (8/15)**

Fifteen 'large' aneurysms were detected in the first two years of screening, all 15 men have now undergone surgery.

Eight of the fifteen men (53.3%) were operated on within 40 days. The seven men (46.7%) who were not operated on within 40 days of referral, were operated within 44 to 153 days. One of the delays was due to the need of a custom made graft, the other was due to the participant not being appropriate for surgery at the time of referral to Vascular Services.

Time to assessment and surgery in abdominal aortic aneurysm (AAA) screening

Large aneurysms (≥ 5.5 cms) were detected in 15 men and included one man who was already known by vascular services to have an aneurysm. Among these 15 men, 53% (8/15) were seen in the out-patient department for assessment within 10 days and 8/15 (53%) underwent surgery repair within 40 days. The longer waiting time for two men (153 and 72 days) related to one man who was initially unfit for surgery and a second man who required the manufacture of a fenestrated graft. Overall 5 (33%) men underwent open repair and 10 (67%) men underwent minimally invasive endovascular repair (EVAR).



Time to assessment/surgery among these 15 men was correlated with the size of the detected aneurysm at screening, with larger aneurysm generally having a shorter time to both assessment and surgery. Only one man with a aneurysm ≥ 6.0 cms was assessed after 10 day and no men with a AAA ≥ 6.0 cms waited more than 40 days for surgery; the average time to surgery for men with a AAA ≥ 6.0 cms was 20 days.

5. Outcome

National Screening Programme Key Performance Indicators for Outcomes

| Patient Journey | Topic | Quality Measure | Essential and Desirable Criteria |
|-----------------|--|---|----------------------------------|
| 5. Outcome | CORE Post-operative mortality (assessed annually over most recent 100 cases submitted by vascular network) | 5.1 30-day mortality rate following open elective AAA surgery | <5% E < 3.5% D |
| | | 5.2 30-day mortality rate following EVAR intervention | <4% E <2% D |

From the 15 men referred to Vascular Services, 10 underwent endovascular repair, 1 fenestrated EVAR repair and 4 open repairs, although one man had an unsuccessful EVAR and is now receiving ongoing surveillance by Vascular Services. Grampian met all desirable criteria for the outcomes KPI's with a 30 day mortality rate of 0%.

| | |
|--|----------------|
| 5.1 - 30 day mortality rate following open elective AAA surgery | 0%(4/4) |
|--|----------------|

All 4 men who underwent open surgery have survived for 30 days or more post surgery.

| | |
|--|-------------------|
| 5.2 - 30 day mortality rate following EVAR elective AAA surgery | 0% (11/11) |
|--|-------------------|

All 11 men who underwent EVAR elective surgery have survived for 30 days or more post surgery.

Incidents

All incidents are reported using the electronic data base DATIX system and then investigated. Lessons learned are shared with the Team, with relevant changes being made to improve practice. During our first two years there were no clinical incidents reported. Only a small number of non clinical minor incidents were reported, with the exception of five incidents affecting participants. These were all resolved and all participants have been invited/screened and images obtained. The majority of other incidents reported were due to equipment/IT failure which is being monitored and reported to our local IT Department and the National Programme when appropriate.

| Type of Incident | Details | Number Reported | Total Reported |
|----------------------------------|---|-----------------|----------------|
| Clinical | | 0 | 0 |
| Non Clinical | | | |
| Equipment | Failure to transfer worklist from laptop to ultrasound scanner | 13 | 23 |
| | Unable to transfer images to AAA Pacs | 3 | |
| | Laptop failed to connect to wi-fi | 2 | |
| | Ultrasound failure | 4 | |
| | Faulty connection on power cable between laptop and scanner | 1 | |
| System Failure (admin) | Appointment letters were not sent from central office | 2 | 2 |
| Pool Cars | Flat tyre on way to Clinic | 1 | 2 |
| | Whilst parked drivers wing mirror damaged. No details of left by owner of other vehicle which caused damage. | 1 | |
| Incidents affecting participants | Participant scanned under the wrong details. | 2 | 5 |
| | Screeener failed to verify attendance of participant with the result no images were available. Participant was re-scanned. | 1 | |
| | Participant attended his appointment but nurses could not find him, possibly sitting in wrong waiting area | 1 | |
| | Other Board thought they were working in the Training Module but were in "live" system, populated what they thought was, an imaginary Clinic for NHS Grampian but was, in fact, a "live" Clinic, resulting in us having to contact participants to advise that their appointment details were inaccurate. | 1 | |
| Grand Total | | | 32 |

Audits

Initial Experience of Abdominal Aortic Aneurysm (AAA) Screening in Grampian

Presented at:

- Annual Faculty of Public Health Conference, Dunblane, Scotland (November 2013),
- CPD Meeting for NHS Grampian's Public Health Department, Aberdeen (February 2014), and
- Scottish Vascular Group Meeting, Dunblane, Scotland (March 2014)

Objective

Screening 65 year old men within Grampian for an abdominal aortic aneurysm (AAA).

Methods

Men in their 65th year are invited for AAA screening by postal invitation. In Grampian AAA screening is undertaken by nurses (4 wte Band 5) using portable ultrasound scanners. They rotate in pairs across 7 sites (predominantly community hospitals) within Grampian and also visit Orkney. The scanners are laptop-linked and images/measurements are stored on a national database. The majority of men will have normal scans (AA diameter \leq 2.9 cms). Men with AA 3.0 to 5.4cms are monitored within the programme. Men with large AA (\geq 5.5 cms) are referred for rapid surgical assessment at Aberdeen Royal Infirmary (ARI).

Results

Grampian was the third Board to launch in Scotland (25th October 2012) with an initial allocation of 3,739 men. As of 6th June 2013 some 2,801 men have been screened, including 143 (5%) self-referring older men. The overall uptake is 79% and uptake has been similarly high across all sites (see Figure). Overall 18% have not attended and 2% of invited men have cancelled/re-booked their appointments. Some 43 AAA's (\geq 3.0 cms) have been found, a detection rate of 15.4 per 1,000 screened; 35 are being monitored annually (AAA 3.0 to 4.4cms) and 3 monitored quarterly (AAA 4.5 to 5.4 cms). Five men have been rapidly referred to vascular surgery (3 open repairs, 1 EVAR, 1 pending) at ARI.

Conclusions

Key lessons learnt from the early stages of implementation of AAA screening in Grampian included the importance of close collaboration between programme manager, clinical lead, senior sonographer and public health. The nurses identified several unanticipated practical challenges which included working 'offline' in rural settings, what 'driving advice' to give to men with a AAA and dealing with men unable to provide informed verbal consent.

Factors Associated with the Uptake of Abdominal Aortic Aneurysm Screening by Men Living in Urban and Rural Areas of North East Scotland

Presented at:

- Annual Faculty of Public Health Conference, Aviemore, Scotland (6th & 7th November 2014), and
- NAAASP Research Meeting (NHS Abdominal Aortic Aneurysm Screening Programme) at Manchester University (9th February 2015).

Publications:

BJS, Volume 102, issue 8 (July 2015) (<http://www.bjs.co.uk/details/article/8024451/Influence-of-rurality-deprivation-and-distance-from-clinic-on-uptake-in-men-invi.html>)

Background

Effective abdominal aortic aneurysm (AAA) screening requires high uptake, but information concerning factors associated with uptake by men is limited. Our aim is to assess the independent association of uptake with rurality, social deprivation, clinic-type, distance-to-clinic and season.

Methods

Screening across Grampian is undertaken by trained nurses in six community and three hospital clinics. Men aged 65 are invited by post (with two further reminders for non-responders). AAA-

screening data is stored on a national 'call re-call database'. The Scottish 'postcode directory' was used to allocate all invited men a deprivation index (Scottish Index of Multiple Deprivation, SIMD), Scottish Urban-Rurality Category (SURC6) and distance-to-clinic. Multivariable analysis was undertaken using IBM-SPSS-Statistics (version 22).

Results

Analysis is based on a cohort of 5,645 men invited for screening over 12-months (October 2012-2013); 42% lived in 'urban' areas, 40% 'rural' areas and 18% 'small towns' (uptake 87%, 89%, 91% respectively). Overall uptake was 89% with 76 new AAA's detected (15 per 1,000 men screened). Aberdeen city ('large urban' area) had the lowest uptake (86%). Uptake declined with increasing SIMD-deprivation with the steepest decline in 'urban' areas. On multivariable analysis a 1-point increase in SIMD-decile was associated with a 0.08 (95%CI 0.06 to 0.11; $p < 0.0001$) reduction in the relative odds of being screened. Clinic-type (community versus hospital), distance-to-clinic and season were not independently associated with uptake.

Conclusions

Both urban-residence and social deprivation were independently associated with uptake among men. Despite high-uptake the overall effectiveness of AAA-screening may be restricted by a lower than anticipated detection rate.

Repeatability of Abdominal Aortic Aneurysm Screening by Nurses in the Scottish National Programme

Presented at:

- NAAASP Research Meeting (NHS Abdominal Aortic Aneurysm Screening Programme) at Manchester University (9th February 2015).

Background

Accurate measurement is central to AAA-screening, but information concerning differences between-observers using modern ultrasound devices is limited. Our aim was to assess clinical agreement among nurses in a routine setting.

Methods

Between-observer repeatability was assessed among two pairs of nurses screening a consecutive series of men attending a single community clinic in Grampian. Four nurses used the same General Electric LOGIQe device (1.5 - 4.6 MHz, curvilinear probe) to measure maximal inner-to-inner (ITI) anteroposterior diameter in longitudinal and transverse planes. Nurses alternated in their measurements and were blind to their partners measurements. Participants remained supine whilst being 'double-scanned'. Analysis was undertaken using IBM-SPSS-Statistics (version 22) with clinical agreement assessed as twice the standard deviation (SD) of the mean difference (2SD). Differences between-nurses were assessed using the Bland-Altman 'limits of agreement' (95% LoA) approach (mean difference \pm 2SD) and related plots.

Results

A total of 63 consecutive men underwent assessment (30 nurses A/B; 33 nurses C/D). Mean age 65.5 years, brachial BP 145/88 mmHg, current smokers 14% (never smoked 41%), diabetic 18%, known arterial disease 11%, daily aspirin 16%, anti-hypertensives 35% and statin therapy 44%. Mean aortic diameter (ITI) was 1.81 cms (range 1.28 to 2.45; SD 0.18). Pooled mean differences between nurses was 0.05 cms (95%CI 0.02 to 0.08), 2SD was 0.23 with 95% LOA -0.18 to 0.28. Repeatability was similar for both pairs of nurses and in both planes.

Conclusions

Nurses can achieve a high level of agreement in the measurement of aortic diameter in a routine clinical setting.

For further information on all of the above studies contact Dr Mike Crilly (mike.crilly@abdn.ac.uk)

Dr Mike Crilly, Senior Lecturer in Clinical Epidemiology

Future Developments

Although the Grampian, Orkney and Shetland Collaborative is still at the early development stages the objectives for the Programme for the coming year (2014/15) include:

- Continued regular meetings with the Programme Manager, Programme Co-ordinator, Lead Sonographer and Clinical Lead to monitor and discuss programme performance using National Key Performance Indicators as a bench marking tool.
- Monitor capacity/demand of the eligible participants to meet KPI's.
- Continued monitoring of the screening locations attendance rates.
- A small pilot "Participant Questionnaire" was undertaken, completed and analysed to assess participant's experiences with the AAA Screening Programme. A larger participant survey will be carried out and reported on during our third year.
- Continue to offer participants a choice of suitable locations for screening to maintain high uptake.
- In the next 12 months the Screening Nurses will be taking on an enhanced role to reduce cardiovascular risk factors (including a focus on smoking cessation) among men found to have an AAA who are under routine surveillance.
- Ensure the competencies of the screening nurses are in accordance with National standards through a programme of mentoring and continuing professional development.

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