

**Public Health Screening Programmes Annual Report 1 April 2015 to 31 March 2016**

**Recommendation:-**

Members are asked to **note** the attached *Public Health Screening Programmes Annual Report from 1 April 2015 to 31 March 2016*

**Purpose of Paper:-**

The purpose of the paper is to report on progress of public health screening programmes against national key performance indicators or standards.

**Key Issues to be considered:-**

Public health screening programmes are important in preventing disease and detecting it an early stage, with about half of breast and cervical cancers and a quarter of bowel cancers detected through screening programmes. Screening programmes require continual audit, monitoring and quality improvement and these activities are led by the public health screening unit.

A series of national Healthcare Improvement Scotland reviews of all screening programmes will begin in 2017 and the preparatory work for these will be considerable.

National information campaigns will be launched in 2017 to improve cervical screening uptake.

The Board does not meet minimum uptake rates for 4 of the 5 adult screening programmes. Only AAA screening achieves target uptake.

More effective ways of organising breast screening will be explored in 2017. In particular, we will explore screening clusters of congruent GP practices at a time rather than each practice on its own.

A special review of breast screening services in Scotland by HIS took place in 2016, following two incidents in which women were incorrectly not invited, and incorrectly invited, for screening. The final report is expected to describe the need for new governance arrangements between NSS and Boards.

The business case for an alternative approach to cervical screening – high risk HPV – will be finalised at the end of 2016 and the new approach introduced later in 2017. High risk HPV screening involves the same clinical examination (a cervical smear) but only women whose virology results are positive for specific types of Human Papilloma Virus will have cervical cytology results tested. While a net saving has been estimated, it is difficult to say how much cash may be released.

There will be an interruption of about 3.5 weeks in the diabetic retinopathy screening service early in 2017 as a result of the introduction of a new IT system. The public health screening unit has made contingency arrangements so that newly diagnosed diabetic patients will be screened using slit-lamp examination.

NHS Healthcare Improvement Scotland are currently consulting on updated standards for pregnancy and newborn screening programmes. We will work with HIS to refine and implement these standards.

**Any Patient Safety /Patient Experience Issues:-**

No.

**Any Financial Implications from this Paper:-**

Introduction of primary HPV testing as an added test to cervical screening may have some financial implications for laboratory services in the first three years of implementation. There will be increase in activity of colposcopy referrals but this will decrease after three years following implementation.

**Any Staffing Implications from this Paper:-**

Introduction of primary HPV testing will have an impact on cytology laboratory and colposcopy services.

**Any Equality Implications from this Paper:-**

**Any Health Inequalities Implications from this Paper:-**

There are inequalities in the occurrence of the diseases that are subject to screening. Cervical and bowel cancers occur more frequently in residents of socio-economically deprived areas and the risk of developing bowel cancer is 50% higher in men compared with women.

There are also inequalities in the uptake of screening. Uptake of breast, cervical and bowel cancer screening is lower in younger people and for breast, bowel and abdominal aortic aneurysm screening, uptake is poorer in those living in the most deprived areas. Uptake of screening is poorer in ethnic minorities and in people with learning disabilities.

**Has a Risk Assessment been carried out for this issue? If yes, please detail the outcome:-**

**Highlight the Corporate Plan priorities to which your paper relates:-**

Early intervention and preventing ill-health.

Prepared by:

Dr David Morrison, Consultant in Public Health Medicine (Adult Screening)

Dr John O'Dowd, Consultant in Public Health (Pregnancy and Newborn Screening)

Denise Lyden, Project Officer

Health Services, Public Health

08 December 2016

# Public Health Screening Programmes Annual Report 1 April 2015 to 31 March 2016

## Introduction

This annual report presents information about the following screening programmes offered to residents across NHS Greater Glasgow and Clyde (NHSGGC) for the period 2015/16:

1. Aortic Abdominal Aneurysm Screening
2. Bowel Screening
3. Breast Screening
4. Cervical Screening
5. Diabetic Retinopathy Screening
6. Pregnancy Screening:
  - Communicable Diseases in Pregnancy
  - Haemoglobinopathies screening
  - Down's's syndrome and other congenital anomalies
7. Newborn Screening:
  - Newborn Bloodspot
  - Universal Newborn Hearing
8. Child Vision Screening
  - Pre-School Vision Screening
  - Primary 7 School Vision Screening

The report includes analysis on uptake among people with learning disabilities and uptake by ethnicity.

The purpose of screening is to detect early disease or risk factors among people who have not yet developed symptoms. Early management should result in better outcomes. Screening programmes do not detect all cases of disease and will be positive among some people who are healthy. They therefore contribute to early detection but do not obviate the need for detecting and treating symptomatic patients.

Healthcare Improvement Scotland will begin national quality assessment reviews of all screening programmes in 2017. These will include extensive self-assessments and visits to Boards. The first screening programme to be reviewed will be abdominal aortic aneurysm screening. A special review of breast screening services in Scotland by HIS took place in 2016, following two incidents in which women were incorrectly not invited, and incorrectly invited, for screening. The final report is expected to describe the need for new governance arrangements between NSS and Boards.

**Table A** shows the number of people eligible in NHS Greater Glasgow and Clyde in 2015/16 that were offered screening tests, the number of people who had taken up the offer of screening and the uptake rates for each of the screening programmes.

**Table A: NHSGGC screening programmes uptake rates for the period 1 April 2015 to 31 March 2016**

<b>Screening programme</b>	<b>Total eligible population</b>	<b>Total number Screened</b>	<b>HIS Target</b>	<b>% Uptake<sup>5</sup></b>
Abdominal Aortic Aneurysm Screening	5,760	4,637	70%	80.5%
Bowel screening <sup>1</sup>	349,567	182,358	60%	52.2%
Breast screening <sup>2</sup>	123,131	83,721	70%	67.9%
Cervical screening <sup>3</sup>	331,326	235,955	80%	71.1%
Diabetic retinopathy Screening	56,535	44,511	80%	78.7%
Pregnancy screening:				
• Communicable diseases in pregnancy <sup>4</sup>	15,853	15,816	n/a	99.0%
• Down's's syndrome	13,427	9,843	n/a	61.0%
• Haemoglobinopathies	13,427	13,102	n/a	97.6%
Newborn screening:				
• Newborn bloodspot	12,439	12,382	n/a	99.5%
• Newborn hearing	12,337	12,138	n/a	98.4%
Pre-school vision screening	12,975	11,258	n/a	86.6%
Primary 7 school vision screening	11,780	10,294	n/a	87.4%

Sources: NHSGGC bowel Screening IT system; West of Scotland Breast Screening; Scottish Cervical Call Recall System; PNBS; National Newborn Screening Laboratory; West of Scotland Prenatal Screening Laboratory; AAA IT system

Notes:

1. Bowel Screening target population – number of people screened within 2 years
2. Breast Screening target population – number of people screened within 3 years
3. Cervical Screening target population – number of women screened within 5.5 years
4. Communicable Diseases in Pregnancy - percentage uptake of each of the tests has been calculated by dividing the number requesting tests by the total number of samples. Also include tests from Argyll (NHS Highland residents)
5. Screening activity covers the period from 1 April 2015 to 31 March 2016

## **1. Abdominal Aortic Aneurysm Screening**

- 1.1 The aim of abdominal aortic aneurysm screening is to detect aneurysms and treat them, if necessary, by elective surgery rather than as emergencies, where operative mortality is up to 85%.
- 1.2 All men aged 65 years in the Board area are invited to attend AAA screening by a single ultrasound examination.
- 1.3 5,760 men aged 65 were invited to participate in the AAA Screening programme in 2015-2016.
- 1.4 4,637 (80.5%) took up screening, exceeding the minimum standard of 70%.
- 1.5 Lowest uptake overall was 74% among residents in the most deprived neighbourhoods while uptake among residents in the least deprived areas was 88%.
- 1.6 Lowest uptakes were found in Glasgow City HSCPs, ranging from 76% to 78%. These may largely reflect the effects of socio-economic deprivation.
- 1.7 59 men (1.3%) were found to have an aneurysm measuring between 3.00 and 5.49 cm and are currently on surveillance.
- 1.8 Ten men (0.1%) had an aneurysm measuring 5.5 cm or more that required surgical assessment and intervention.
- 1.9 All essential KPIs for AAA screening were met.
- 1.10 In 2017, new contracts will need to be negotiated for the maintenance or replacement of the ultrasound machines used for AAA screening.

## **2. Breast Screening**

- 2.1 The aim of breast screening is to detect breast cancers at an early stage. All women aged between 50 and 70 are invited for 3-yearly screening by mammography.
- 2.2 During 2013-2016, 123,131 women were eligible for breast screening in NHSGGC.
- 2.3 There has been an increase of 3.8% in uptake since 2012/15. 68.0% (83,721) of eligible women attended breast screening during the previous three years, against a minimum target of 70%. East Dunbartonshire, East Renfrewshire and Renfrewshire HSCP areas met the target uptake.
- 2.4 752 (0.9% of all screened) women were diagnosed with breast cancer following screening.
- 2.5 About half of all breast cancers among women aged 50 and 70 in the Board area are detected by screening.

- 2.6 Of the 615 women with learning disabilities, only 275 (44.7%) participated in breast screening.
- 2.7 Uptake rates were lower at younger ages.
- 2.8 Uptake of breast screening is strongly associated with socio-economic circumstances. It ranged from 56.4% in the most deprived quintile to 78.1% in the least deprived. The variation in uptake between HSCPs is probably largely explained by socio-economic differences.

Uptake of breast screening differs between ethnic groups. It was lowest in Black or Black British, Caribbean and African women (48.7%) and highest among white women (68.5%). Asian or Asian British Indian women were the only ethnic minority with uptake rates above 60%.

- 2.9 More effective ways of organising screening will be explored in 2017, in particular, we will explore screening clusters of congruent GP practices at a time rather than each practice on its own.
- 2.10 A special review of breast screening services in Scotland by HIS took place in 2016, following two incidents in which women were incorrectly not invited, and incorrectly invited, for screening. The final report is expected to describe the need for new governance arrangements between NSS and Boards.
- 2.11 In 2014, when the most recent data were available, the number of new breast cancers registered in NHSGGC was 950. The risk of developing breast cancer in NHSGGC is not significantly different to that in the rest of Scotland.

### **3. Bowel Screening**

- 3.1 The aim of bowel screening is to detect pre-cancerous polyps and early cancers. All Board residents between 50 and 74 years old are sent home testing kits every 3 years. If the results are positive, diagnostic colonoscopy or computed tomography colonography is carried out. Patients with a cancer diagnosis are referred for surgery and other treatment.
- 3.2 In 2014-16, 349,657 NHSGGC residents were invited to participate in the bowel screening programme.
- 3.3 The overall uptake of screening was 52.2%, against a minimum target of 60%.
- 3.4 Patients whose bowel cancers are detected through screening are three times more likely to be diagnosed with earliest stage cancers and half as likely to have widespread, metastatic cancer when diagnosed compared to those who have symptoms.
- 3.5 Uptake is poorest in Glasgow City HSCPs, in men, younger people, the most socio-economically deprived, residents with learning disabilities and in ethnic minorities.

- 3.6 Results are most likely to be positive among men, older people and the most socio-economically deprived. There are also lower uptake rates in some HSCPs that are not wholly explained by socio-economic deprivation.
- 3.7 In 2017, several initiatives will take place to try to improve uptake of bowel screening. These include the introduction of a more accurate and acceptable screening test (QFIT, quantitative faecal immunoassay test) and public information campaigns.

#### 4. **Cervical Screening**

- 4.1 The aim of cervical screening is to detect pre-cancerous changes and treat them before cancer develops as well as to detect cancers at an early stage. Women aged 25 to 64 are offered cervical screening. There was a change in the age range and frequency (CARAF) in July 2016 to reflect new evidence for the most effective approach. 2015-16 data do not reflect the CARAF.
- 4.2 Cervical cancer incidence increased 18% over the past 10 years.
- 4.3 332,033 women were invited for cervical screening in 2015-16.
- 4.4 The 5.5-year uptake of cervical screening was 71% in 2015-16, against a target of 80%.
- 4.5 Uptake was lowest (59%) in Glasgow North West sector and highest in East Dunbartonshire and East Renfrewshire (81%).
- 4.6 Uptake has been declining over time in NHSGGC, as with other Scottish Boards.
- 4.7 Women from the least deprived areas are most likely to take up cervical screening but there is not a clear trend across socio-economic groups.
- 4.8 Women aged 21-24 years were least likely to take up screening (50%) but no age-group achieves the 80% standard.
- 4.9 National information campaigns will be launched in 2017 to improve uptake.
- 4.10 The business case for an alternative approach to cervical screening – high risk HPV – will be finalised at the end of 2016 and the new approach introduced later in 2017. High risk HPV screening involves the same clinical examination (a cervical smear) but only women whose virology results are positive for specific types of Human Papilloma Virus will have cervical cytology results tested. While a net saving has been estimated, it is difficult to say how much cash may be released.
- 4.11 Women with learning disabilities had much lower uptake rates for cervical screening, at 25% over 5.5 years. Women aged 21-24 with learning difficulties had even lower uptake rates of 9.8%.

- 4.12 Ethnic minorities have poorer uptake of cervical screening than white women. Chinese, Black and Asian women have much lower rates of uptake.
- 4.13 The Queen Elizabeth University Hospital processes all smear test specimens and in 2015-16 processed 99,037 specimens.
- 4.14 The proportion of unsatisfactory smear is low at 2.8%.
- 4.15 10% of smears are abnormal, the most common reasons being low grade dyskaryosis and borderline change in squamous cells.
- 4.16 NHSGGC has carried out a multi-disciplinary review of all invasive cervical cancer cases since 2006 to audit the screening and management of every case.
- 4.17 NHS Health Scotland is planning to launch a national social digital media campaign in early 2017 to encourage women aged 25 – 35 to take up cervical screening.

## **5. Diabetic Retinopathy Screening**

- 5.1 64,558 NHS Greater Glasgow and Clyde residents had diabetes in 2015/16, an increase of 33% from 2007/08.
- 5.2 Prevalence of diabetes among NHS Greater Glasgow and Clyde adult residents has gradually increased from 4.3% in 2007/08 to 5.8% in 2015/16.
- 5.3 The largest proportion of people with diabetes was among the 50 – 79 year olds. This represents 69.3% (44,748) of the total population with diabetes.
- 5.4 Among people with diabetes, 55.4% were male.
- 5.5 The majority of people with diabetes were of white origin (86.6%).
- 5.6 26,511 (41.1%) are known to be resident in the most deprived areas compared to 9,470 (14.7%) who live in the least deprived areas.
- 5.7 56,535 (87.6%) were eligible for screening and of those, 78.7% were screened, against a target of 80%
- 5.8 In 2017, a change in IT system from Soarian to Vector will result in about 3 weeks of interruption in the normal DRS service. We will arrange screening of newly diagnosed diabetic patients by slit-lamp examination during this period to minimise clinical risk to patients

## **6. Pregnancy Screening**

- 6.1 The Aims of pregnancy screening programme are threefold:
- antenatal haemoglobinopathies screening for sickle cell and thalassaemia aims to identify couples who are at risk of having an affected child and thereby offer them information on which to base reproductive choices;

- communicable diseases in pregnancy screening aims to identify infection and ensure a plan for treatment and management of affected individuals and their babies is put in place at the earliest opportunity. Screening allows undiagnosed infection to be identified and treatment to be given, which can reduce the risk of mother to child transmission, improve the long-term outcome and development of affected children, and ensure that women, their partners and families are offered appropriate referral, testing and treatment; and
- Down's syndrome and other congenital anomalies screening aims to detect Down's syndrome and other congenital anomalies in the antenatal period. This provides women and their partners with informed choice regarding continuation of pregnancy. It also allows, where appropriate, management options (such as cardiac surgery or delivery in a specialist unit) to be offered in the antenatal period.

- 6.2 There were 16,147 women booked to attend antenatal clinics across NHSGGC. 13,427 (82%) women were NHSGGC residents.
- 6.3 74% (9,959) were of British origin, 6% (737) were of Pakistan origin and 5% (693) were of Eastern European origin.
- 6.4 86% (10,358) of first antenatal booking appointments were offered within 12 weeks gestational age and 14% (1,684) between 13 to 16 weeks gestational age, meeting the Scottish Government's HEAT target for early access to antenatal care.
- 6.5 Only 45% (6,084) of pregnant women had a normal weight at the time of their first antenatal booking appointment. 50% (6,685) of pregnant women were overweight or obese.
- 6.6 Of the 6,685 pregnant women who were overweight or obese, 44% (2,929) were obese or severely obese. Obesity is a risk factor for gestational diabetes. Women with gestational diabetes are at increased risk of having a large baby, a stillborn baby or a baby who dies shortly after birth. They are more likely than non-diabetic women to require their labour to be induced and to have their baby delivered by Caesarean section. Work is underway to enhance the care of women with risk-factors for gestational diabetes.
- 6.7 98% (13,217) of pregnant women had taken up haemoglobinopathies screening.
- 6.8 Uptake was greater than 99% for all of the communicable diseases in pregnancy screening tests which include HIV, hepatitis B, rubella and syphilis.
- 6.9 Screening identified 16 women infected with HIV (the majority of whom were previously known); 72 women were infected with hepatitis B (46 were previously known) and six women infected with syphilis. 2,611 women (17%) were identified as susceptible to rubella and were offered immunisation with MMR vaccine after delivery.

- 6.10 From June 2016, screening for susceptibility to rubella for all pregnant women ceased following a review by the UK National Screening Committee. Rubella infection levels in the UK are at a level defined as eliminated by the World Health Organisation. Screening for rubella susceptibility in pregnancy does not give any protection to the unborn baby in the current pregnancy and stopping antenatal screening is unlikely to result in increased rates of congenital rubella. There were 12 cases of congenital rubella reported in the UK between 2005 and 2015. None of these could have been prevented by the screening programme. Given this change, we will work to raise awareness of the need for immunisation against rubella for women of reproductive age.
- 6.11 Of the 9,843 (61% uptake) samples that were tested for Down's syndrome, 7,285 (45%) were taken from women in their first trimester and 2,558 (16%) samples were taken from women in the second trimester. 2% (179) of women tested in their first trimester were assigned to the 'higher chance' of Down's syndrome group. 5% (126) of women tested in their second trimester were assigned to the 'higher chance' of Down's syndrome group.
- 6.12 255 amniocentesis samples were analysed by the Cytogenetics Laboratory. Some women whose indication for amniocentesis has been recorded as "maternal age" have also been screened. Thirty-two abnormalities were detected (13% of samples) and 19 of those (8% of total tests) had a diagnosis of trisomy (Down's Syndrome).
- 6.13 117 chorionic villus biopsies were analysed by the Cytogenetics Laboratory in 2015-16. Forty abnormalities were detected (34% of tests) and 32 of those (27% of tests) had a diagnosis of trisomy (which includes Down's syndrome, trisomy 21).
- 6.14 76% (10,210) of pregnant women had taken up congenital anomalies screening (using fetal ultrasound scanning). 247 anomalies were detected antenatally (2.4%). Of this number 74 anomalies were detected postnatally and 17 were normal postnatally. The outcomes for 156 antenatal anomalies were not known or recorded.
- 6.15 An audit was undertaken of all live-births, stillbirths, fetal losses and terminations of pregnancy between 1 April 2015 and 31 March 2016 that were associated with one or more congenital abnormalities. A total of 345 fetuses or babies were affected by congenital abnormalities that were identified from 344 pregnancies (allowing for multiple pregnancies). 25% of these resulted in termination.

## **7. Newborn Bloodspot Screening**

- 7.1 Newborn bloodspot screening aims to identify, as early as possible, abnormalities in newborn babies which can lead to problems with growth and development, so that they may be offered appropriate management for the condition detected. The diseases screened for are phenylketonuria; congenital hypothyroidism; cystic fibrosis; sickle cell haemoglobinopathy and medium chain acyl-CoA dehydrogenase deficiency (MCADD). These conditions all result in serious illness and disability which can be avoided through early identification and preventative care.

- 7.2 12,382 babies resident in NHSGGC were screened, that is a total of 99% of the total eligible population of 12,681. The uptake of screening was high across all socioeconomic deprivation quintiles and geographical areas. 72% of babies screened had white UK ancestry, 7% had South Asian ancestry and 5% had mixed background ancestry.
- 7.3 Eight babies were diagnosed with congenital hypothyroidism, less than five babies with PKU (phenylketonuria); less than five babies with cystic fibrosis; less than five babies with sickle cell disease, and 57 babies were identified as carriers for haemoglobinopathies. The phrase *less than five* has been used in line with NHS Scotland information governance which is intended to preserve anonymity.

## **8. Universal Newborn Hearing Screening**

- 8.1 Universal Newborn Hearing screening aims to detect early permanent congenital hearing impairment. In addition, babies with mild and unilateral losses are also being identified and receive ongoing review.
- 8.2 Of the 12,337 eligible babies, 12,138 were screened for hearing loss giving an uptake of 98%. 1,321 (11%) babies required a second stage follow up and, of these, 186 (1.5%) babies were referred to audiology. 17 babies were confirmed with a hearing loss (0.4% of the screened population). 12 babies had confirmed bilateral hearing loss and 5 babies had confirmed unilateral hearing loss.
- 8.3 199 (2%) babies did not complete the screening programme. These included babies who did not attend for screening, are deceased or have moved away from their current home address or transferred to another Board area.

## **9. Pre-school Vision Screening Programme**

- 9.1 The aim of vision screening is to detect reduced vision. There is good evidence that earlier diagnosis and treatment can lead to lower levels of significant permanent vision loss in children.
- 9.2 Vision Screening is routinely offered to all resident pre-school age children. Vision problems affect 3-6% of children and often go undetected. Problems can be treated using spectacle lenses to correct any refractive error and occlusion therapy – mainly eye patches, to correct problems with squint (strabismus). These treatments can be used alone or in combination. Treatment is most effective when the brain is still developing (in young children) and when the child co-operates in wearing the patch and/or glasses.
- 9.3 In 2015-16, 12,975 children aged between four to five years old were identified as being eligible for pre-school vision screening. 41% (5,276) of children live in the 20% most deprived areas, with the largest proportion living in the Glasgow area.
- 9.4 The highest uptake was in the most affluent quintile (92%) and the lowest uptake was in the most deprived quintiles (84%). The highest uptake was among children of white ethnicity at 88%, followed by Asian children where uptake was 81%. The lowest uptake was among other ethnic groups at 74%. The overall uptake was 87%.

There was variation in uptake by geographical area.

- 9.5 Of the 11,258 children screened, 8,108 (72%) had a normal result. Of the 2,430 (22%) children referred for further assessment, 26% were from the most deprived areas. The highest proportion of children screened that were referred for further investigation was in Glasgow North East and Glasgow North West (both 29%). The lowest was 13% in East Renfrewshire.
- 9.6 Of the 89 (1%) children that were recalled back to be screened due to difficulties screening their vision during the first screen, 62 lived in the most deprived areas. 631 (6%) children are currently under follow up by ophthalmology services.

## **10. P7 School Vision Screening programme**

- 10.1 The aim of P7 vision screening is to detect correctable vision problems prior to transition to secondary education. Audits within NHSGGC have demonstrated that a significant number of vision problems are detected by screening.
- 10.2 11,780 Primary 7 school children were eligible for a vision test and 10,294 (87%) were tested in 2015-2016. The highest uptake was in the Glasgow North East sector at 90%. The lowest uptake was in Renfrewshire at 85%. The highest uptake was among children of white ethnicity at 88%, followed by Asian ethnicity (82%) and black ethnicity 76%.
- 10.3 Of the 11,780 children eligible for vision testing, 15% (1,811) were already wearing prescription spectacles. 10,294 school children were screened for visual impairment and 16.5% were found to have any visual defect, with 6.6% (676) having poor vision. The highest proportion of children identified with poor vision were living in Glasgow North West sector at 12.4%. East Renfrewshire HSCP area had the lowest proportion of children with poor vision at 3.7%.

A comprehensive annual report on NHSGGC Public Health Screening programmes will be published on 19 December 2016 on [www.nhsggc.org.uk/your-health/public-health/public-health-screening-unit/reports/](http://www.nhsggc.org.uk/your-health/public-health/public-health-screening-unit/reports/)