Greater Glasgow and Clyde NHS Board

Board Meeting

16 February 2010

Board Paper No: 10/05

Director of Public Health

Public Health Screening Programmes Annual Report 1 April 2008 to 31 March 2009

RECOMMENDATION

Members are asked to **note** the attached *Public Health Screening Programmes Annual Report from 1 April 2008 to 31 March 2009.*

INTRODUCTION

This annual report presents information about the following screening programmes offered to residents across NHS Greater Glasgow and Clyde for the period 2008/09:

- Cervical Screening
- Bowel Screening
- Breast Screening
- Communicable Diseases in Pregnancy
- Down's syndrome and other congenital anomalies
- Newborn Bloodspot
- Universal Newborn Hearing
- Diabetic Retinopathy Screening
- Pre-School Vision Screening

In addition, we have also highlighted plans for:

- the replacement of the existing Pregnancy Screening Programme offered for Down's syndrome and other congenital anomalies

- the implementation of haemoglobinopathy screening both during pregnancy and for newborn babies

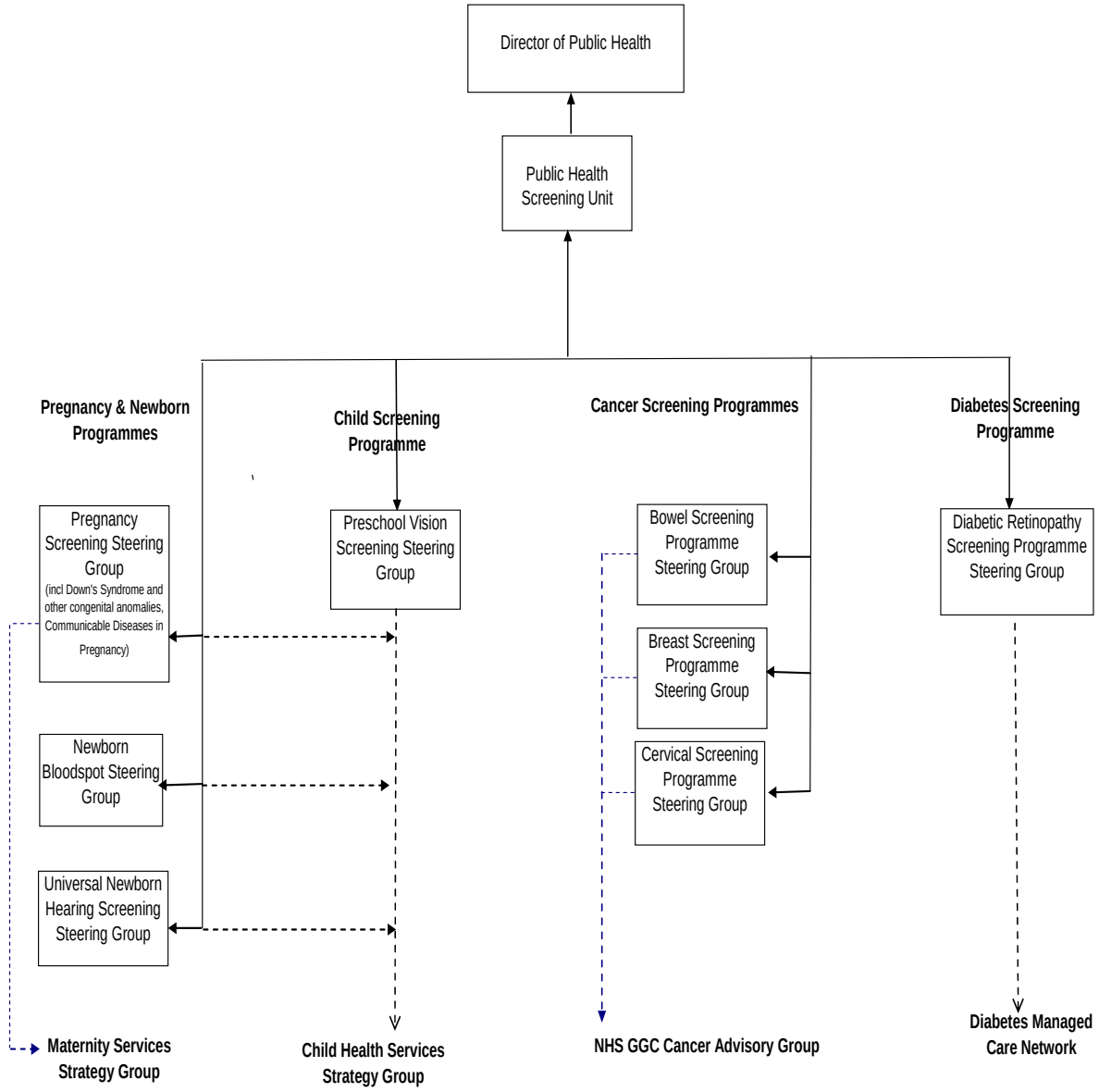
- the extension of the newborn bloodspot screening programme to include screening for Medium Chain Acyl CoA Dehydrogenase Deficiency (MCADD)

Screening is a public health service offered to specific population groups to detect potential health conditions before symptoms appear. Screening has the potential to save lives and improve quality of life through early diagnosis of serious conditions.

In NHS Greater Glasgow and Clyde, the co-ordination of all screening programmes is the responsibility of the Public Health Screening Unit led by a Consultant in Public Health Medicine. Multidisciplinary Steering Groups for the programmes are in place and their remit is to monitor performance, uptake and quality assurance.

Figure A illustrates the reporting and accountability lines.

Figure 1: Accountability arrangements for population screening programmes across NHS Greater Glasgow and Clyde (as at 2009)



In 2008/2009, approximately 247,464 NHS Greater Glasgow and Clyde residents were eligible for screening (see Table A). Table A also shows that 35.1% of the total population live in the most deprived areas of NHS Greater Glasgow and Clyde.

Table A Total NHS Greater Glasgow and Clyde population and total number and percentage of eligible screening population

	SIMD 2006 Most Deprived				Least Deprived	
	1	**2**	**3**	**4**	**5**	**Total**
Total GGC Population	444,830	206,258	157,846	164,802	220,736	1,194,472
Target Screening Population [1]	**86899**	**43249**	**33585**	**35453**	**48277**	**247464**
% of total GGC population	19.5	21.0	21.3	21.5	21.9	20.7
% of target screening population	**35.1**	**17.5**	**13.6**	**14.3**	**19.5**	**100.0**

Source: Small Area Population Estimates (SAPE) 2008
SIMD - Scottish Index of Multiple Deprivation

[1] Target Screening - Number of people eligible for screening within 1 year
SIMD - Scottish Index of Multiple Deprivation

Health inequalities

As part of NHS Greater Glasgow and Clyde's commitment to tackle inequalities to health, the Public Health Screening Unit engaged with voluntary and statutory services to identify innovative ways to encourage and promote uptake of screening programmes.

We engaged with local CH(C)P health improvement teams and voluntary groups to develop local protocols to encourage and include groups who, for various social and economic circumstances, could potentially be excluded or prevented from taking up any of our public health screening programmes.

Screening programmes stretch across the whole organisation and the successful delivery relies on a large number of individuals working in a co-ordinated manner towards common goals in a quality assured environment. It is essential that good information management systems are in place to monitor and evaluate each component and the overall performance of every screening programme offered to our residents. All the screening programmes, with the exception of Pre-school Vision Screening, have clinical standards set by NHS Quality Improvement Scotland which we strive to meet.

Equality impact assessments for each of the screening programmes are planned starting with cervical screening. The outcome of the assessments will identify any areas of the service that prevent service users from receiving equal access to services or receiving treatment when taking part in any screening programme.

CERVICAL SCREENING

- Cervical cancer is caused by oncogenic types of human papilloma virus (HPV), mainly types 16 and 18.

- Women aged 20 to 60 who live in Greater Glasgow and Clyde areas are invited to have a smear test taken every three years.

- There were approximately 362,800 women aged 21 to 60 resident in NHS Greater Glasgow and Clyde in the target population. Following the exclusion of those with no cervix, approximately 345,000 women were eligible to be invited to participate in the programme over three years. Each year approximately 115,000 women are sent an invitation to attend.

- The cervical screening uptake rate as defined by NHS Quality Improvement Scotland Standards has increased in Greater Glasgow and Clyde and Scotland in the past year. The uptake rate increased in Argyll and Clyde from 76.2% to 78.7%; in Greater Glasgow from 72.9% to 75.2%; and Scotland wide from 77.9% to 79.4%. Information Services Division (ISD) data continues to be reported on the old NHS Board boundaries and the Community Health Index continues to code patients according to those.

- The increase in uptake rate was due to the intense publicity caused by Jade Goody's illness and death from cervical cancer.

- We calculated the uptake rates of NHS Greater Glasgow and Clyde residents: the 5.5 year cervical screening uptake rate, when only the no cervix exclusion has been applied, increased from 71.9% in 2007/08 to 72.7%. This is still significantly less than the 81.5% reported in 2001.

- When exception categories allowed under the General Medical Services (GMS) contract were included, the calculated 5.5 year uptake rate increased from 82.7% in 2007/09 to 83.6% in 2008/09.

- There was a 9% difference in the uptake rate calculated for the purpose of QIS Standard and GMS contract.

- On average, 31% of women aged 21 to 60 had been excluded under one of the GMS exclusion categories. 23.7% of women have been excluded as they defaulted following invitations to take part in screening, while 5% of women have been excluded as they have no cervix.

- The uptake of cervical screening varied across different age groups. The lowest 5.5 year uptake in 2008/09 was among the 20 to 24 year at 55.1% when only no cervix exclusion was applied. When calculations were made for the purpose of General Medical Services target payments the uptake was 73%.

- The cervical screening uptake rate varied across deprivation categories. The lowest 5.5 year uptake rate in 2008/09 was seen among women resident in the most deprived neighbourhoods where the uptake rate was 68.9% while among the least deprived neighbourhoods, the uptake rate was 79.5% when only the no cervix exclusion was applied. When calculations were made for the purpose of General Medical Services target payments the uptake among women living in the most deprived neighbourhoods was 80.6%, whereas those living among the least deprived was 88.3%.

- 116,000 smear tests were processed and reported in laboratories in NHS Glasgow and Clyde in 2008/09. These included repeat smears and smears taken at colposcopy as one woman can have more than one smear test. This represents an increase of 21,674 (23%) from the number of smears processed in 2007/08.

- The proportion of results reported as abnormal smears in 2008/09, after excluding the unsatisfactory tests, was 9.9%. Abnormal smears results include: borderline, mild, moderate and severe dyskaryosis, severe dyskaryosis/invasive, glandular abnormality and adenocarcinoma.

- The cervical screening histories of women who developed invasive cervical cancer were reviewed in 2008/09. Sixty-five patients were diagnosed with invasive cervical cancer in 2008. (The number of patients diagnosed with invasive cervical cancer in 2007 was 67; 49 in 2006; and 50 in 2005.) The largest number of cervical cancers occurred in women aged between 30 and 39 years.

- Twenty-five women out of the 50 with invasive cervical cancer in 2005, 22 women of 49 in 2006, 34 women of 67 in 2007 and 31 women of 65 in 2008 had a complete smear history. Over the four years audited, 33 women out of the 231 that developed cancer had never had a smear.

- There were 23 deaths over the four years audited; 69 women were under follow up at colposcopy service and 127 were under follow up in the oncology service.

- The Scottish Cervical Call Recall System (SCCRS) implemented in 2007 provides women with a complete e-health record detailing their whole smear history. Professionals involved with the screening programme have access to this system. Since the system was implemented, the turnaround time for smears reported has reduced. The system also produces automated reports and more recently allows for individual performance data to be produced.

- In an effort to improve uptake we continue to provide comparative practice-based uptake figures to all practices and to the Community Health Care Partnerships.

- A subgroup of the NHS Greater Glasgow and Clyde Cervical Screening Steering Group oversees the promotion of the cervical screening among hard to engage groups. Initiatives are aimed at women with learning difficulties, those in long term institutions, women in travelling communities, women in long term care and women abusing alcohol.

- Following intense media publicity surrounding Jade Goody's death from cervical cancer, we have seen increased awareness and participation in the programme.

- A national group has been set up to oversee a new communication strategy informed by the research carried out in Scotland in which NHS Greater Glasgow and Clyde residents were sampled.

- To reduce the number of unsatisfactory smears, a cervical skills update training programme will be developed and offered to all community smear takers from 2010.

BREAST SCREENING

- This report represents interim data for the breast screening round May 2006 – May 2009 in NHS Greater Glasgow and Clyde.

- From May 2006 to May 2009, there were 142,829 eligible women across NHS Greater Glasgow and Clyde.

- 102,331 women (72% of eligible women) were invited for breast screening during period reported.

- 72,220 women (71% of those invited) attended breast screening during the reported period.

- There were 495 women who were diagnosed with breast cancer following screening.

- NHS Greater Glasgow and Clyde implemented two view mammography in Clyde in May 2009 and will extend it across Greater Glasgow by March 2010.

- In May 2009, a breast screening protocol for women in specific categories was approved and implemented across NHS Greater Glasgow and Clyde. The protocol aims to ensure that all groups are invited to take part in the breast screening programme and are followed up appropriately.

- A sub group has recently been set up to explore the opportunity of educating women about lifestyle choices and risk factors associated with cancer during their normal screening appointment.

INTERIM REPORT FOR BOWEL SCREENING PROGRAMME FOR PERIOD 1 APRIL 2009 TO 31 DECEMBER 2009

- Colorectal (Bowel) Cancer is the third most common cancer in Scotland. Every year over 3,400 people are diagnosed with the disease.

- The Scottish Bowel Screening Programme was launched in 2007 and will be fully implemented across Scotland by the end of 2009.

- NHS Greater Glasgow and Clyde implemented the bowel screening programme in April 2009. During 2008/09, detailed planning for implementation was carried out.

- The programme will invite all men and women between the ages of 50 – 74 years registered with a General Practice. Other eligible individuals who are not registered with a General Practice will be able to participate. Thereafter, all individuals will be routinely recalled every two years.

- It is estimated that, from 1 April 2009 to 31 March 2010, 244,000 NHS Greater Glasgow and Clyde residents will have been invited to participate in the Bowel Screening programme.

- All eligible individuals are sent a teaser letter two weeks before the screening kit is sent to advise them that they will be sent the bowel screening kit.

- 135,440 teaser letters were sent to eligible participants.

- 66,571 test results were reported by the Bowel Screening laboratory and this gives an estimated uptake of 50%.

- 1,645 patients received a positive result. This represented a positivity screening rate of 2.5%. This was higher than the national average range of 1.9% to 2.3% reported in the Scottish Bowel Screening Programme KPI reports (www.ISDscotland.org 25 August 2009) .

- Of the 1,645 patients screened positive, 1,457 patients were pre-assessed prior to colonoscopy. 84 patients did not respond to the offer of a colonoscopy pre-assessment.

- 1,040 (63.2%) patients completed colonoscopy investigations by 31 December 2009. 3.1% (46) patients refused to take up the offer of a colonoscopy. Of the total eligible population invited to take part in bowel screening, 84 (0.06%) cancers were detected.

- To minimise the complication rates for colonoscopy, colonoscopy skills update training and continuous audit for screening colonoscopists are implemented.

- A bespoke information management and technology system to support the bowel screening programme was developed in-house. The data collected allows staff to monitor service performance and track patients through the process from point of referral to diagnosis and treatment for colorectal cancer.

- NHS Greater Glasgow and Clyde has implemented several initiatives to promote uptake based on experience from Breast Screening. Primary care staff and Health Promotion leads in Community Health (Care) Partnerships are involved by displaying promotional materials and engaging with local communities to promote and encourage the uptake of bowel screening.

- A TV, radio and poster campaign was commissioned by NHS Greater Glasgow and Clyde which ran from April to August 2009. The evaluation of the campaign reported that by using TV advertising, TV awareness was 46%, and the total campaign awareness was 53%.

COMMUNICABLE DISEASES IN PREGNANCY

- To comply with NHS Quality Improvement Scotland standards (*Clinical Standards 2005, Pregnancy and Newborn Screening)*, protocols covering each of the four communicable diseases routinely tested for in pregnancy – HIV, rubella, hepatitis B virus and syphilis - have been developed and implemented throughout Greater Glasgow and Clyde. These protocols are major steps towards a consistent approach to co-ordinating this screening programme throughout the Board area.

- All pregnant women are offered screening for the four communicable diseases, and receive an information leaflet about the screening tests prior to attendance at their first booking visit.

- 16,079 pregnant women had a first booking visit at a Greater Glasgow and Clyde hospital during 2008/09. This includes all first booking visits at hospital, at a clinic outside of hospital, including community outreach and at GP surgeries or at home.

- Laboratory data indicates that the uptake of screening for communicable diseases in pregnancy is high (greater than 95%) for all four communicable diseases.

- Thirteen pregnant women were identified as having HIV by the screening programme, only six of whom were previously known to be HIV positive. Seventy-three women were detected as having hepatitis B virus, 34 of whom were previously known to be chronic carriers of the virus. Fifteen women were identified by the screening programme to be positive for syphilis. Of these six were false positives, three were previously treated and only six required follow-up management.

DOWN'S SYNDROME AND NEURAL TUBE DEFECTS

- In NHS Greater Glasgow and Clyde screening for Down's syndrome and neural tube defects (NTDs) is offered to all pregnant women at their booking visit.

- In the year 2008/09, 16,079 women attended antenatal clinics across NHS Greater Glasgow and Clyde. 14,232 women were NHS Greater Glasgow and Clyde residents and 1,847 women lived outwith the Board area.

- There were two screening pathways in NHS Greater Glasgow and Clyde: first trimester combined ultrasound and biochemical testing for Down's syndrome and 18-20 week foetal anomaly ultrasonography offered to women booking in the Clyde area of NHS Greater Glasgow and Clyde; and second trimester blood testing offered to women booking in Greater Glasgow.

- In 2008/09, the overall uptake for Down's syndrome and neural tube defects was 63.8%. The overall percentage uptake for Down's syndrome was 62.95%; and first trimester combined ultrasound and biochemical screening for neural tube defect was 15.3%. 0.8% of women chose to have only neural tube defect screening.

- Following the second trimester screening, 6.4% of women were assigned to the 'higher chance' of Down's syndrome group, 0.7% of women assigned to the 'higher chance' of trisomy 18 group and 2.2% of women with an elevated AFP giving a 'higher chance' of a neural tube defect.

- 460 amniocentesis tests were analysed by the Cytogenetics Laboratory. 50 abnormalities were detected (10.9% of samples) and 26 of those (5.7% of total tests) had a diagnosis of trisomy (Down's syndrome/trisomy 18).

- 97 chorionic villus biopsies were analysed by the Cytogenetics Laboratory in 2008/09. 31 abnormalities were detected (32% of tests) and 17 of those (17.5% of tests) had a diagnosis of trisomy (Down's syndrome/trisomy 18).

- To date, it is known that 11 cases of Down's syndrome, 2 cases of trisomy 18 and 4 cases with neural tube defects were detected antenatally by screening. Some babies born with these conditions will not be diagnosed during pregnancy as a number of women that had a "higher chance" screening result would not take up the offer of diagnostic test (amniocentesis or CVS).

- From 2010, all women in NHS Greater Glasgow and Clyde will be offered combined ultrasound and biochemical screening (CUBS) in the first trimester of pregnancy and a second trimester foetal anomaly ultrasound (FAS) scan between 18 weeks, 0 days and 20 weeks, 6 days. Women who do not present early enough in their pregnancy to take advantage of first trimester screening will be offered second trimester serum screening.

NEWBORN BLOODSPOT SCREENING

- The newborn bloodspot screening programme offers tests to detect certain congenital abnormalities which can cause problems in growth and development and for which there is effective management or treatment. The conditions screened for are phenylketonuria, congenital hypothyroidism and cystic fibrosis.

- Newborn Screening for phenylketonuria and congenital hypothyroidism has been in progress since 1965 and 1979 respectively. Newborn screening for cystic fibrosis was added in Scotland in February 2003.

- In 2008/09 of the 15,509 bloodspot samples received, 85 (0.5%) bloodspot specimens could not be analysed due to insufficient amounts of blood on the bloodspot card. This required repeat bloodspot screening tests to be carried out on babies. 61 (0.4%) samples received had taken more than 7 days to arrive at the laboratory.

- In 2008/09, 14,231 babies of NHS Greater Glasgow and Clyde residents were screened which represents 97.7% of the total eligible population of 14,563.

- There were 3 positive cases of phenylketonuria detected (a decrease of 5 from previous year); 11 babies with congenital hypothyroidism and 13 babies with cystic fibrosis. All received appropriate management within the timescale of the standard.

- The proportion of bloodspot cards with a CHI number sent for analysis increased from 66% in April 2008 to 88% in March 2009 compared to the national average of 43% in March 2008 and 63% in April 2009.

UNIVERSAL NEWBORN HEARING SCREENING

- The Universal Newborn Hearing Screening (UNHS) Programme was introduced across NHS Greater Glasgow and Clyde in 2005.

- 14,134 babies born in 2008/09 to residents of NHS Greater Glasgow and Clyde. 5,981 (42%) of babies were born to residents in the most deprived areas.

- Of the 14,134 babies born in 2008/09, 13,620 were screened for a hearing loss giving an overall uptake of 96.4%. 204 (1.5%) babies were referred to audiology and, of those, 25 were confirmed with a hearing loss. 3.2% (452) did not attend for screening and these include babies who are deceased or have moved away from their current home address or transferred to another Board area.

- NHS Greater Glasgow and Clyde has established a Universal Newborn Hearing Screening Network to enable staff to share knowledge and experiences.

- An interface between the eSP, the Community Health Index (CHI) and Child Health information systems across Scotland has been developed and the link went live on 2 November 2009. The link removes the need for manual entry of data into eSP which would provide more screening time, tracking of all babies and more importantly a failsafe for notification of births ensuring no babies are missed.

- A local IT project to allow Clyde screeners to transfer screening data electronically into eSP is being piloted by Health visitors in Greenock. It is planned that the pilot will run until Spring 2010 followed by an evaluation. If successful, the project will be implemented across all Clyde sites.

FUTURE DEVELOPMENTS -PREGNANCY AND NEWBORN BLOODSPOT SCREENING PROGRAMMES

- Since September 2009, all pregnant women are now offered foetal anomaly screening scanning when booking into antenatal care.

- It is planned that from summer 2010, all pregnant women will be offered combined ultrasound and biochemical screening in the first trimester of pregnancy. This involves measuring the biochemical markers in the mother's blood and is combined with the ultrasound measurement of nuchal translucency in the foetus.

- There are plans to introduce screening for Medium Chain Acyl CoA Dehydrogenase Deficiency (MCADD) in NHS Greater Glasgow and Clyde by summer 2010 as an addition to the current newborn bloodspot screening tests. The final implementation has still to be decided by National Services Division in consultation with NHS Boards.

- MCADD leads to an inability to metabolise sufficient energy from fat during periods of stress such as fasting, inter current illnesses with fever or surgery.

- NHS Greater Glasgow and Clyde plan to implement the Haemoglobinopathies screening programme by summer 2010.

- All pregnant women will be offered screening for sickle cell disease, thalassaemia and other haemoglobinopathies.

- Newborn babies will be screened for sickle cell disorders as part of the newborn bloodspot screening programme.

- An IT application is being developed to support the pregnancy and newborn bloodspot screening programmes. Implementation will be phased across the hospital and community sites from November 2009 to March 2010. It is expected that the IT application will:

    - remove the need for duplicating data entry and reduce data error
    - have inbuilt quality assurance and audit mechanisms
    - have inbuilt failsafe alert mechanisms
    - facilitate automation of letters and reports
    - will link a mother's antenatal screening history with her baby's screening record

DIABETIC RETINOPATHY SCREENING

- Diabetic Retinopathy is a complication of diabetes affecting blood vessels of the retina and is the biggest single cause of blindness and visual impairment amongst working age people in Scotland.

- All people with diabetes aged 12 and over are eligible for the diabetic retinopathy screening using digital photography.

- The diabetes retinopathy screening using digital photography was implemented in August 2006 in Argyll and Clyde. The service was introduced in Greater Glasgow in 2002 and expanded and redesigned in 2006/07.

- The screening programme takes place in a variety of settings across Greater Glasgow and Clyde (including the Argyll and Bute area). There are four mobile screening units and ten fixed site locations.

- As at May 2009 there were 52,695 people with diabetes in NHS Greater Glasgow and Clyde.

- As at May 2009, 37,560 (71.4%) people with diabetes were screened for diabetic retinopathy. At least 9.3% of patients with diabetes who were invited for screening did not take up the offer of screening. This could be an underestimate of the current situation as approximately 20% of screening appointments are reported as "did not attend" by the service. 2525 (4.8%) patients were permanently suspended from the screening programme as they were already attending an ophthalmology clinic.

- In February 2008, a review of the patient pathway was undertaken to assess the effectiveness of the referral to ophthalmology process and the completeness of feedback received following attendance at ophthalmology clinics. Following the review, the service identified control measures that should be put in place that will allow the continuous monitoring of the delivery of the administrative tasks and the provision of feedback from ophthalmology clinics. These include a "return receipt" for ophthalmology referrals and access to the Diabetic Retinopathy Screening information and management system in Ophthalmology clinics.

- Work commenced in late 2008 to develop a single Greater Glasgow and Clyde service and to integrate the diabetes information management systems by April 2009.

PRE-SCHOOL VISION SCREENING

- All children born between 1 March 2004 and 28 February 2005 were offered pre-school vision screening in 2008/09.

- 13,235 children aged between four to five years old were identified using the Community Health Index System as being eligible for pre-school vision screening.

- 10,175 children were screened out of 13,235 eligible children in 2008/09. This gives an uptake rate of 76.9%. The uptake rate varies across the geographical location from 67.2% in East Glasgow to 81.1% in Clyde.

- 604 (4.6%) of eligible children were already attending an eye clinic.

- 63 (0.5%) parents refused consent for their children to be screened.

- 8,534 children were screened in a nursery setting; that represents 83.9% of all screened children and 64.5% of all eligible children.

- Children who could not be screened in the programme at the end of the school year were invited to a hospital Orthoptic Department for screening. This represents 14.2% (1,874) of the total eligible population (13,235). This includes children resident in East Glasgow where staff shortage has had an impact on the delivery of screening in nurseries.

- Following screening, 2,761 (27.1%) children were referred for further assessments. Of these, 301 (10.9%) were referred to a Community Optometrist for further assessment. This represents 2.27% of the total eligible population.

- 7,414 (72.9%) of children screened had a normal result following screening.

- The recruitment of Orthoptists to allow the delivery of screening in nurseries is a challenge and priority for the pre-school vision programme. In 2008, three Assistant Practitioners were appointed to the service to support Orthoptists with administrative duties.

NHS
Greater Glasgow and Clyde

Public Health Screening Programmes

Annual Report

1 APRIL 2008 TO 31 MARCH 2009

Introduction

This annual report presents information about the following screening programmes offered to residents across NHS Greater Glasgow and Clyde for the period 2008/09:

- Cervical Screening
- Bowel Screening
- Breast Screening
- Communicable Diseases in Pregnancy
- Down's syndrome and other congenital anomalies
- Newborn Bloodspot
- Universal Newborn Hearing
- Diabetic Retinopathy Screening
- Pre-School Vision Screening

In addition, we have also highlighted plans for:

- the replacement of the existing Pregnancy Screening Programme offered for Down's syndrome and other congenital anomalies

- the implementation of haemoglobinopathy screening both during pregnancy and for newborn babies

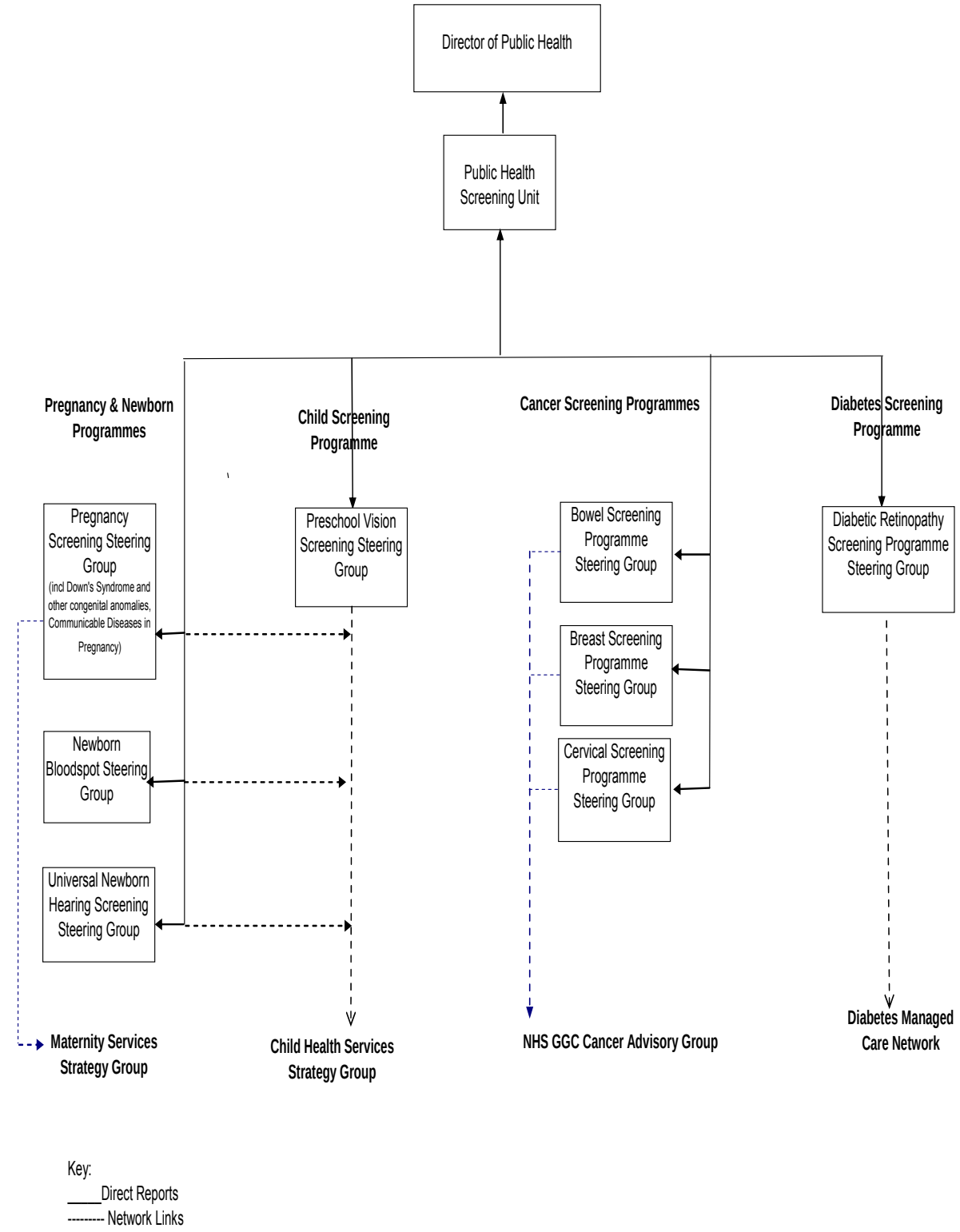
- the extension of the newborn bloodspot screening programme to include screening for Medium Chain Acyl CoA Dehydrogenase Deficiency (MCADD)

Screening is a public health service offered to specific population groups to detect potential health conditions before symptoms appear. Screening has the potential to save lives and improve quality of life through early diagnosis of serious conditions.

In NHS Greater Glasgow and Clyde, the co-ordination of all screening programmes is the responsibility of the Public Health Screening Unit led by a Consultant in Public Health Medicine. Multidisciplinary Steering Groups for the programmes are in place and their remit is to monitor performance, uptake and quality assurance.

Figure A illustrates the reporting and accountability lines.

Figure 1: Accountability arrangements for population screening programmes across NHS Greater Glasgow and Clyde (as at 2009)



In 2008/2009, approximately 247,464 NHS Greater Glasgow and Clyde residents were eligible for screening (see Table A). Table A also shows that 35.1% of the total population live in the most deprived areas of NHS Greater Glasgow and Clyde.

Table A Total NHS Greater Glasgow and Clyde population and total number and percentage of eligible screening population

	SIMD 2006 Most Deprived				Least Deprived	
	1	**2**	**3**	**4**	**5**	**Total**
Total GGC Population	444,830	206,258	157,846	164,802	220,736	1,194,472
Target Screening Population [1]	**86899**	**43249**	**33585**	**35453**	**48277**	**247464**
% of total GGC population	19.5	21.0	21.3	21.5	21.9	20.7
% of target screening population	**35.1**	**17.5**	**13.6**	**14.3**	**19.5**	**100.0**

Source: Small Area Population Estimates (SAPE) 2008
SIMD - Scottish Index of Multiple Deprivation

[1] Target Screening - Number of people eligible for screening within 1 year
SIMD - Scottish Index of Multiple Deprivation

Health inequalities

As part of NHS Greater Glasgow and Clyde's commitment to tackle inequalities to health, the Public Health Screening Unit engaged with voluntary and statutory services to identify innovative ways to encourage and promote uptake of screening programmes.

We engaged with local CH(C)P health improvement teams and voluntary groups to develop local protocols to encourage and include groups who, for various social and economic circumstances, could potentially be excluded or prevented from taking up any of our public health screening programmes.

Screening programmes stretch across the whole organisation and the successful delivery relies on a large number of individuals working in a co-ordinated manner towards common goals in a quality assured environment. It is essential that good information management systems are in place to monitor and evaluate each component and the overall performance of every screening programme offered to our residents. All the screening programmes, with the exception of Pre-school Vision Screening, have clinical standards set by NHS Quality Improvement Scotland which we strive to meet.

Equality impact assessments for each of the screening programmes are planned starting with cervical screening. The outcome of the assessments will identify any areas of the service that prevent service users from receiving equal access to services or receiving treatment when taking part in any screening programme.

CHAPTER 1: CERVICAL SCREENING

SUMMARY

- Cervical cancer is caused by oncogenic types of human papilloma virus (HPV), mainly types 16 and 18.
- Women aged 20 to 60 who live in Greater Glasgow and Clyde areas are invited to have a smear test taken every three years.
- There were approximately 362,800 women aged 21 to 60 resident in NHS Greater Glasgow and Clyde in the target population. Following the exclusion of those with no cervix, approximately 345,000 women were eligible to be invited to participate in the programme over three years. Each year approximately 115,000 women are sent an invitation to attend.
- The cervical screening uptake rate as defined by NHS Quality Improvement Scotland Standards has increased in Greater Glasgow and Clyde and Scotland in the past year. The uptake rate increased in Argyll and Clyde from 76.2% to 78.7%; in Greater Glasgow from 72.9% to 75.2%; and Scotland wide from 77.9% to 79.4%. Information Services Division (ISD) data continues to be reported on the old NHS Board boundaries and the Community Health Index continues to code patients according to those.
- The increase in uptake rate was due to the intense publicity caused by Jade Goody's illness and death from cervical cancer.
- We calculated the uptake rates of NHS Greater Glasgow and Clyde residents: the 5.5 year cervical screening uptake rate, when only the no cervix exclusion has been applied, increased from 71.9% in 2007/08 to 72.7%. This is still significantly less than the 81.5% reported in 2001.
- When exception categories allowed under the General Medical Services (GMS) contract were included, the calculated 5.5 year uptake rate increased from 82.7% in 2007/09 to 83.6% in 2008/09.
- There was a 9% difference in the uptake rate calculated for the purpose of QIS Standard and GMS contract.
- On average, 31% of women aged 21 to 60 had been excluded under one of the GMS exclusion categories. 23.7% of women have been excluded as they defaulted following invitations to take part in screening, while 5% of women have been excluded as they have no cervix.
- The uptake of cervical screening varied across different age groups. The lowest 5.5 year uptake in 2008/09 was among the 20 to 24 year at 55.1% when only no cervix exclusion was applied. When calculations were made for the purpose of General Medical Services target payments the uptake was 73%.

- The cervical screening uptake rate varied across deprivation categories. The lowest 5.5 year uptake rate in 2008/09 was seen among women resident in the most deprived neighbourhoods where the uptake rate was 68.9% while among the least deprived neighbourhoods, the uptake rate was 79.5% when only the no cervix exclusion was applied. When calculations were made for the purpose of General Medical Services target payments the uptake among women living in the most deprived neighbourhoods was 80.6%, whereas those living among the least deprived was 88.3%.

- 116,000 smear tests were processed and reported in laboratories in NHS Glasgow and Clyde in 2008/09. These included repeat smears and smears taken at colposcopy as one woman can have more than one smear test. This represents an increase of 21,674 (23%) from the number of smears processed in 2007/08.

- The proportion of results reported as abnormal smears in 2008/09, after excluding the unsatisfactory tests, was 9.9%. Abnormal smears results include: borderline, mild, moderate and severe dyskaryosis, severe dyskaryosis/invasive, glandular abnormality and adenocarcinoma.

- The cervical screening histories of women who developed invasive cervical cancer were reviewed in 2008/09. Sixty-five patients were diagnosed with invasive cervical cancer in 2008. (The number of patients diagnosed with invasive cervical cancer in 2007 was 67; 49 in 2006; and 50 in 2005.) The largest number of cervical cancers occurred in women aged between 30 and 39 years.

- Twenty-five women out of the 50 with invasive cervical cancer in 2005, 22 women of 49 in 2006, 34 women of 67 in 2007 and 31 women of 65 in 2008 had a complete smear history. Over the four years audited, 33 women out of the 231 that developed cancer had never had a smear.

- There were 23 deaths over the four years audited; 69 women were under follow up at colposcopy service and 127 were under follow up in the oncology service.

- The Scottish Cervical Call Recall System (SCCRS) implemented in 2007 provides women with a complete e-health record detailing their whole smear history. Professionals involved with the screening programme have access to this system. Since the system was implemented, the turnaround time for smears reported has reduced. The system also produces automated reports and more recently allows for individual performance data to be produced.

- In an effort to improve uptake we continue to provide comparative practice-based uptake figures to all practices and to the Community Health Care Partnerships.

- A subgroup of the NHS Greater Glasgow and Clyde Cervical Screening Steering Group oversees the promotion of the cervical screening among hard to engage groups. Initiatives are aimed at women with learning difficulties, those in long term institutions, women in travelling communities, women in long term care and women abusing alcohol.

- Following intense media publicity surrounding Jade Goody's death from cervical cancer, we have seen increased awareness and participation in the programme.

- A national group has been set up to oversee a new communication strategy informed by the research carried out in Scotland in which NHS Greater Glasgow and Clyde residents were sampled.

- To reduce the number of unsatisfactory smears, a cervical skills update training programme will be developed and offered to all community smear takers from 2010.

CHAPTER 1: CERVICAL SCREENING

Background

Systematic cervical screening began in 1989 as part of the National Scottish Cervical Screening Programme (SCSP). Over the last 20 years women aged 20 to 60 resident in NHS Greater Glasgow and Clyde area have been invited to have a cervical smear at least every 5 years.

Cervical cancer is caused by oncogenic types of human papilloma virus (HPV), mainly types 16 and 18. HPV can evolve during a period of 10 to 20 years through precancerous lesions to invasive cancer and death.

Aim of screening programme

The aim of the Scottish Cervical Screening Programme (SCSP) is to reduce the number of women who develop invasive cancer and the number of women who die from it by detecting precancerous changes. By taking a cytological smear from the cervix, followed where necessary by a diagnostic test, it is possible to identify changes in individual cells which may mean that the woman is at risk of developing invasive cancer at a later date. Prompt treatment can result in permanent removal of affected areas of the cervix and prevent the development of cancer.

Target population

Women aged 20 to 60 who live in Greater Glasgow and Clyde areas are invited to have a smear test taken every three years.

Screening test

A “smear test” is whereby cells are collected from the surface of the cervix, or ‘neck of womb’ and is sent to a specialist laboratory. The cells are then examined under a microscope to see if any of them appear abnormal.

Liquid based cytology (LBC) is a way of preparing cervical samples for examination in the laboratory. The sample is collected in a similar way to the conventional smear, using a special device which brushes cells from the neck of the womb. Rather than smearing the sample onto a microscope slide as happens with the conventional smear, the head of the brush, where the cells are lodged, is broken off into a small glass vial containing preservative fluid, or rinsed directly into the preservative fluid.

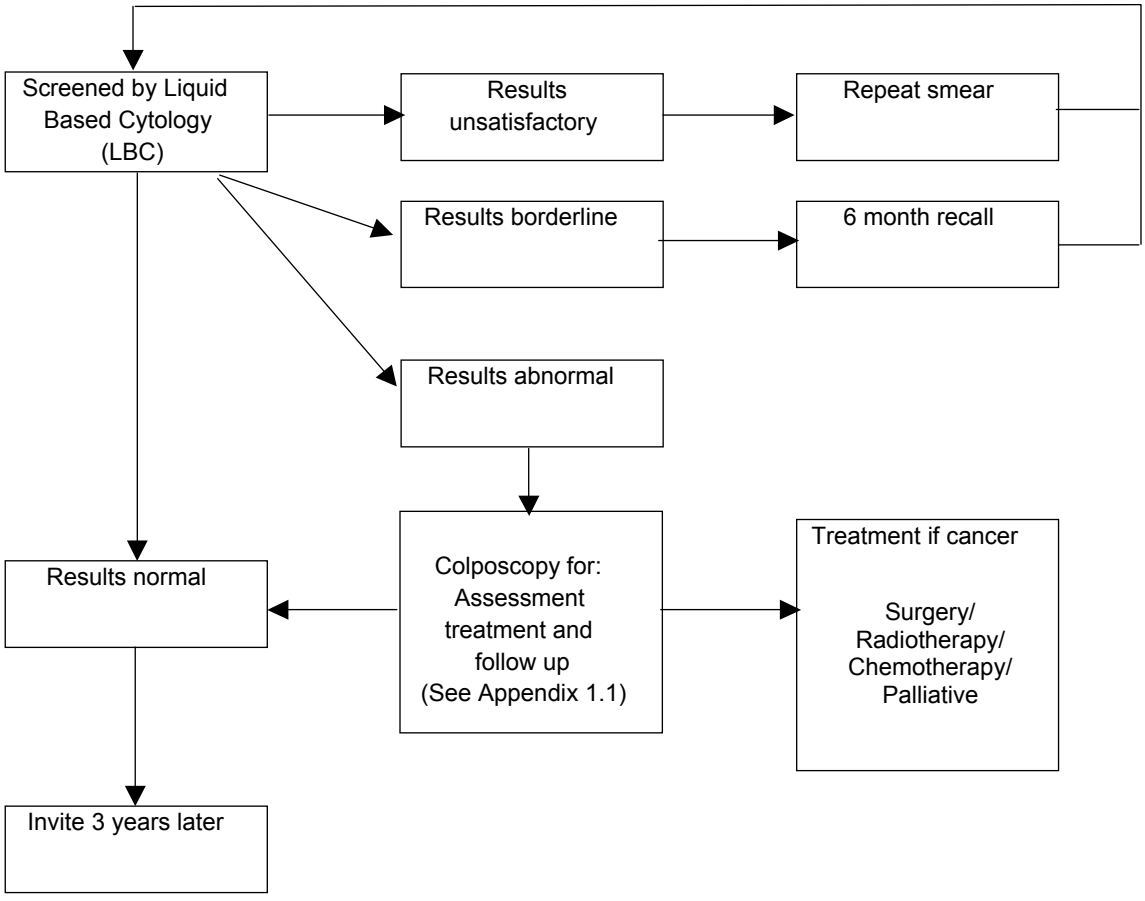
The sample is sent to the laboratory where it is spun and treated to remove obscuring material, for example mucus or pus, and a random sample of the remaining cells is taken. A thin layer of the cells is deposited onto a slide. The slide is examined in the usual way under a microscope by a cytologist.

Screening pathway

Figure 1.1 illustrates the pathway for cervical screening programme. Following the invitation being issued, a woman will attend for a test. Women can also have opportunistic smears at the time of attending medical care for another reason. Depending on the result of the test she will be recalled to attend, if eligible, in 3 years (normal result), 6 months (for a borderline result); will have a repeat smear (if result not satisfactory); or will be referred to colposcopy for diagnostic tests and treatment. Treatment of invasive cervical cancers follows agreed cancer treatment pathways.

The responsibility for making the referral to the Colposcopy/Gynaecology service lies with the originator of the referral smear.

Figure 1.1 cervical screening pathway



Delivery of screening programme 2007/08

Table 1.1 shows the numbers of women in the target and eligible populations for the cervical screening programme. There were approximately 362,800 women aged 21 to 60 resident in NHS Greater Glasgow and Clyde in the target population. Following the exclusion of those with no cervix, approximately 345,000 women were eligible to be invited to participate in the programme over three years. Each year approximately 115,000 women are sent an invitation to attend.

Table 1.1 NHS Greater Glasgow and Clyde Cervical Screening populations

Year	Target Population[1]	Eligible Population[2]	
		NHSQIS[3]	Target GMS Payments[4]
2000/01	360,361	338,068	
2001/02	360,170	337,919	
2002/03	360,069	338,184	
2003/04	360,644	339,460	292,652
2004/05	358,617	338,291	273,106
2005/06	364,919	345,408	272,447
2006/07	359,436	340,446	272,104
2007/08[5]	362,828	344,252	268,484
2008/09[5]	362,845	344,882	251,844

Sources: 2000/01-2006/07 - CHI via Cervical Cytology system
2007/08 - 2008/09 - Scottish Cervical Call Recall System

1 Women aged 21 to 60 years

2 Women aged 21 to 60 years except medically exempt women, as defined in 3 and 4

3 NHS QIS Standard is the "no Cervix" and uptake

4 Target Payments excludes those women with the exclusion categories as defined in the GP Contract, implemented in 2004

5 Based on GGC Resident Population and not Practice population

Table 1.1 also shows the number of women that were considered to be eligible for cervical screening after the application of the exclusions allowed by the General Medial Services contract. 86,185 women who did not attend cervical screening after three invitations have been excluded from the eligible population under the GMS defaulters exception reporting.

The General Medical Services (GMS) Contract introduced in 2004 includes cervical screening in the additional services domain and awards practices for providing the service under the Quality and Outcomes Framework.

The cervical screening indicator 1 (80% of patients aged 21 to 60 whose notes record that a cervical smear has been performed in the last 5 years) reflects the previous General Medical Services Contract target payment system for cervical screening and is designed to encourage and provide an incentive to continue to achieve high levels of uptake in cervical screening.

The indicator excludes women who have had hysterectomy involving the complete removal of the cervix.

In addition practices are allowed to exclude "patients who have been recorded as refusing to attend review who have been invited on at least 3 occasions during the proceeding 12 months" under the exception reporting.

Table 1.2 shows the Information & Statistics Division (ISD) published statistics for the 5.5 year cervical screening uptake rates as calculated for the NHS Quality Improvement Scotland standards and the Performance Assessment Framework target for the two areas that form Greater Glasgow and Clyde and Scotland. Argyll and Bute (now NHS Highland) uptake rate figures are included in the Argyll and Clyde rates. ISD data continues to be reported based on the old NHS Board boundaries as the Community Health Index continues to code patients according to those.

Table 1.2 Uptake for Cervical Screening 1st January 1995 to 31st March 2009

Percentage uptake of females aged 20-60[1] who had a record of a previous smear taken within the last 5.5 years

NHS Board of Residence	1999-2000	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
Argyll & Clyde	87	85.8	85.2	84.3	83.3	82.2	81.1	76.2	78.7
Greater Glasgow	82.5	82.3	82.2	82.1	81.7	80.9	79.5	72.9	75.2
Scotland[2]	86.7	86.5	86	85.5	84.6	83.8	82.6	77.9	79.4

Source: ISD(D)4 Legacy applications for 1995 to 2006-07 data
Source: ISD(D)4 SCCRs for 2007-08 Data

1. Based on adjusted Community Health Index (CHI) population denominator (20-59 years, excluding medically ineligible women).
2. Excludes Lothian NHS Board (Data unavaliable/calculated on a different basis).
3. Figures derived from GP self-reporting claim forms submitted to Primary Care Finance in support of claims for target payments.
4. Cervical Screening year runs from 1 April to 31st March.

The cervical screening uptake rate in both Greater Glasgow and Clyde and Scotland has seen an increase in the past year. Table 1.2 illustrates that compared to 2007 – 2008, the uptake rate increased in Argyll and Clyde from 76.2% to 78.7% and in Greater Glasgow from 72.9% to 75.2%. Uptake across Scotland increased from 77.9% to 79.4%. That was due to the intense publicity caused by Jade Goody's illness and death from cervical cancer.

To quantify how much the cervical screening uptake has been affected by the changes in the General Medical Services contract we calculated the 5.5 year cervical screening uptake rates by applying the "no cervix" exclusion and then the General Medical Services exclusion categories.

Table 1.3 shows the comparative numbers of and percentage uptake rates for NHS Greater Glasgow and Clyde residents screened by the programme in the last 5.5 years for the purpose of Quality Improvement Standards and GMS contract.

Table 1.3 Cervical Screening Uptake

	Number of Women Screened[1]		5.5 year[2] Percentage Uptake	
Year	NHS QIS Standard[3]	GMS Target payments[4]	QIS Standard[3]	GMS Target payments[4]
2000/01	275,361		81.5%	
2001/02	276,239		81.7%	
2002/03	276,666		81.8%	
2003/04	271,419	260,863	80.0%	89.1%
2004/05	268,860	251,457	79.5%	92.1%
2005/06	267,931	246,570	77.6%	90.5%
2006/07	262,604	243,388	77.1%	89.4%
2007/08[5]	247,652	221,975	71.9%	82.7%
2008/09[5]	250,799	210,605	72.7%	83.6%

Sources: 2000/01-2006/07 - CHI via Cervical Cytology system
2007/08 - 2008/09 - Scottish Cervical Call Recall System

1 Women aged 21 to 60 years with an adequate smear within the last 5.5 years, except medically exempt women, as defined in 3 and 4

2 NHS Greater Glasgow and Clyde aims to identify, invite and encourage women to have a cervical smear at least once every 5.5 years

3 NHS QIS Standard is women with "no Cervix" and uptake

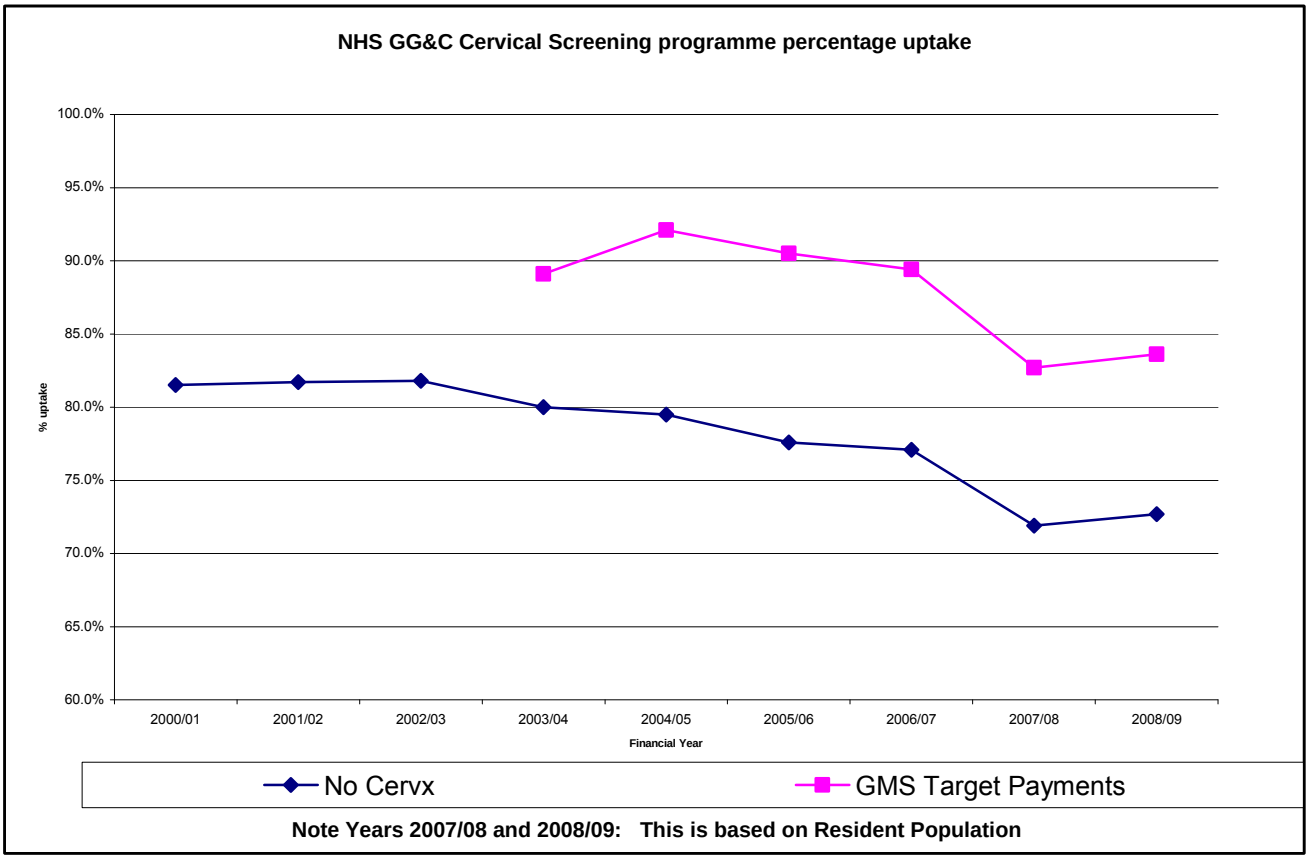
4 Target Payments excludes those women with the exclusion categories as defined in the GP Contract, implemented in 2004

The 5.5 year cervical screening uptake rate, when only the no cervix exclusion has been applied, increased from 71.9% in 2007/08 to 72.7%. This is still significantly less than the 81.5% reported in 2001. When exception categories allowed under the General Medical Services contract were included, the calculated 5.5 year uptake rate increased from 82.7% in 2007/08 to 83.6% in 2008/09. There is a 9% difference in the uptake rate calculated for the purpose of QIS Standard and GMS contract.

On average, 31% of women aged 21 to 60 had been excluded under one of the categories.

The data in **Table 1.3** demonstrates and **Figure 1.2** illustrates the difference in uptake rates calculated for the purpose of NHS Quality Improvement Scotland Standards and Performance assessment framework and General Medical Services target payment. The cervical screening uptake rates for the purpose of the General Medical Services target payments are between 9 and 12% higher than the NHS Quality Improvement Scotland standard uptake rate; the downward trend in the cervical screening uptake has seen a sharper drop following the implementation of the new General Medical Services contract while the uptake for the purpose of General Medical Services contract has initially seen a marked increase followed by a slow decline.

Figure 1.2



Source: CHI via Cervical Cytology System

Table 1.4 shows that 23.75% of women have been excluded as they defaulted following invitations to take part in screening, while 5% of women have been excluded as they have no cervix.

Table 1.4 NHS Greater Glasgow and Clyde Resident Population - Cervical Screening Number of Defaulters

	2007/08	2008/09
Target Population[1]	362,828	362,845
Total Defaulters	67,240	86,185
% Defaulters	18.53%	23.75%

Change in Target Pop	17
Change in Number of Defaulters	18,945

1 Women aged 21 to 60 years

Table 1.5 shows the 5.5 year uptake rates of cervical screening by Community Health (Care) Partnership (CH(C)P) for the no cervix category as calculated for NHS Quality Improvement Scotland standards and the Performance Assessment Framework, and the uptake rate reached for the GMS target payment.

Table 1.5 Cervical Screening Uptake Rates by CH(C)P

	Financial Year								*GMS Contract*	
CHP/ CHCP[1]	**2001/2**	**2002/3**	**2003/4**	**2004/5**	**2005/6**	**2006/7**	**2007/08**	**2008/09**	***2007/08*** [3]	***2008/09*** [3]
East Glasgow	80.1%	80.4%	80.3%	78.1%	78.7%	75.0%	71.1%	71.3%	*82.5%*	81.5%
North Glasgow	78.6%	78.6%	79.0%	76.7%	77.0%	73.2%	68.3%	69.1%	*80.7%*	79.7%
South East Glasgow	80.5%	81.1%	81.0%	80.3%	79.6%	77.1%	70.2%	70.1%	*80.6%*	81.0%
South West Glasgow	82.3%	82.7%	82.5%	80.4%	79.2%	76.4%	70.3%	71.1%	*81.1%*	83.4%
West Glasgow	76.8%	76.7%	77.8%	75.8%	74.8%	73.1%	64.3%	64.8%	*76.0%*	77.1%
North Lanarkshire (part)	82.6%	83.0%	84.3%	83.7%	83.5%	82.7%	78.9%	79.4%	*86.1%*	89.1%
South Lanarkshire (part)	83.6%	84.4%	84.3%	82.3%	82.2%	80.1%	76.0%	77.0%	*86.6%*	86.2%
East Dunbartonshire	85.0%	85.6%	85.4%	85.2%	84.8%	83.3%	78.6%	79.8%	*87.6%*	89.1%
East Renfrewshire	85.0%	85.8%	85.7%	84.6%	83.8%	81.6%	77.5%	78.8%	*85.9%*	88.4%
Inverclyde	82.1%	82.2%	81.7%	79.7%	78.9%	77.2%	74.6%	75.2%	*86.2%*	86.6%
Renfrewshire	83.8%	83.8%	83.5%	80.6%	80.0%	77.8%	73.9%	75.0%	*83.9%*	85.7%
West Dunbartonshire	82.7%	83.3%	73.1%	80.6%	80.4%	78.9%	73.5%	74.8%	*84.6%*	85.6%
NHS GG&C[2]	**81.5%**	**81.7%**	**81.8%**	**80.0%**	**79.5%**	**77.1%**	**71.9%**	**72.7%**	***82.7%***	**83.6%**

Sources: 2000/01-2006/07 - CHI via Cervical Cytology system; 2007/08 - 2008/09 - Scottish Cervical Call Recall System

1 2007/08 & 2008/09 - CHP/CH(C)P has been derived by GGC Resident Population; 2000/01-2006/07 CH(C)P/CHP divided by GP Practice
2 Includes invalid & missing postcodes. Missing=not entered.Invalid=GGC postcode but incorrect or new postcode and unable to derive CHP/CH(C)P
3 Uptake based on Target Payments. Excludes those women with the exclusion categories as defined in the GP Contract, implemented in 2004

Table 1.6 shows that the uptake of cervical screening varied across different age groups. The lowest 5.5 year uptake in 2008/09 was among the 20 to 24 year at 55.1% when only no cervix exclusion was applied. When calculations were made for the purpose of General Medical Services target payments the uptake was 73%.

Table 1.6 Cervical Screening uptakee by age group for NHS Greater Glasgow and Clyde residents for 2008/09

Age Group	NHS QIS Standard[1]					Target GMS Payments[2]				
	Eligible women	3.5 yrs uptake		5.5yrs uptake		Eligible women	3.5 yrs uptake		5.5yrs uptake	
		Total	%	Total	%		Total	%	Total	%
21-24	38947	20293	52.1	21473	55.1	23707	16878	71.2	17296	73.0
25-29	50015	29251	58.5	33710	67.4	34106	25159	73.8	26517	77.7
30-39	87369	57202	65.5	65186	74.6	64615	51278	79.4	53748	83.2
40-49	94873	66074	69.6	74417	78.4	72956	61474	84.3	63894	87.6
50-60	73678	49469	67.1	56013	76.0	56460	47231	83.7	49150	87.1
Total	**344882**	**222289**	**64.5**	**250799**	**72.7**	**251844**	**202020**	**80.2**	**210605**	**83.6**

Source:- Scottish Cervical Call Recall System

s women with "no Cervix" and uptake

2 Target Payments excludes those women with the exclusion categories as defined in the GP Contract, implemented in 2004

Table 1.7 shows that the cervical screening uptake rate varied across deprivation categories. The lowest 5.5 year uptake rate in 2008/09 was seen among women resident in the most deprived neighbourhoods where the uptake rate was 68.9% while among the least deprived neighbourhoods, the uptake rate was 79.5% when only the no cervix exclusion was applied. When calculations were made for the purpose of General Medical Services target payments the uptake among women living in the most deprived neighbourhoods was 80.6%, whereas those living among the least deprived was 88.3%.

Table 1.7 Cervical Screening uptake by deprivation category for NHS Greater Glasgow and Clyde residents for 2008/09

		NHS QIS Standard[1]					Target GMS Payments[2]			
SIMD[3]		Eligible	3.5 yr uptake		5.5 yrs uptake		Eligible	3.5 yr uptake		5.5 yrs
Most Deprived	1	128638	77277	60.1	88672	68.9	88983	68777	77.3	71733
	2	59214	37561	63.4	42533	71.8	42930	34020	79.2	35563
	3	46583	30321	65.1	34062	73.1	34132	27647	81.0	28785
	4	47996	32246	67.2	36096	75.2	36387	29680	81.6	30979
Least Deprived	5	60533	43723	72.2	48107	79.5	48088	40874	85.0	42479
New/Incomplete postcodes[4]		1918	1161	60.5	1329	69.3	1324	1022	77.2	1066
Total		**344882**	**222289**	**64.5**	**250799**	**72.7**	**251844**	**202020**	**80.2**	**210605**

Notes

1 NHS QIS standard is women with "no cervix" and uptake

2 Target Payments excludes those women with the exclusion categories as defined in the GP Contract, implemented in 2004

3 SIMD Quintles 2006

4 Although incomplete these postcodes clearly fall within Greater Glasgow & Clyde boundaries

Cytopathology Laboratories Workload

Table 1.8 shows the number of tests performed in Cytopathology laboratories in the NHS Greater Glasgow and Clyde area. An essential criterion of the NHS QIS standards requires the laboratories to process a minimum of 15,000 smears annually and this has been achieved throughout the area. Approximately 116,000 smear tests were processed and reported in laboratories in NHS Glasgow and Clyde. These included repeat smears and smears taken at colposcopy as one woman can have more than one smear test. This represents an increase of 21,674 (23%) from the number of smears processed in 2007/08.

Table 1.8 Number of smear tests processed in NHS GGC Laboratories

	Number of Smear Tests							
Year	IRH*	VOL*	SGH	GRI	STOB	VIC	NHSGGC	Scotland
2000/01	25,453	17,486	10,266	29,667	15,907	18,959	**117,738**	457,774
2001/02	27,378	14,973	23,326	49,162	190	7,101	**122,130**	471,722
2002/03	24,627	12,384	25,953	44,713	n/a	n/a	**107,677**	439,678
2003/04	23,607	12,052	25,824	44,422	n/a	n/a	**105,905**	429,522
2004/05	28,326	5,843	25,975	43,194	n/a	n/a	**103,338**	406,305
2005/06	36,166	n/a	23,160	44,035	n/a	n/a	**103,361**	410,241
2006/07	36,137	n/a	23,141	40,732	n/a	n/a	**100,010**	401,749
2007/08	30,955	n/a	23,742	39,684	n/a	n/a	**94,381**	373,340
2008/09	38,363	n/a	28,190	49,502	n/a	n/a	**116,055**	450,522

Source 2000-2007 Cervical Cytology System (CCS); 2007/09 - Labs : Telepath & SCCRs

Scotland figures from ISD Website

*IRH/VOL - includes smears tests for Argyll and Bute area

Vale of Leven stopped reporting smears taken as at quarter ending 30th September 2004

Stobhill stopped reporting smears taken as at quarter ending 30th June 2001

Victoria stopped reporting smears taken as at quarter ending 30th September 2001

Table 1.9 shows the proportion of the total cervical samples sent to each of the cytology laboratories that were reported as unsatisfactory smears in 2008/09. Following the introduction of Liquid Based Cytology testing in 2003, there has been a marked decrease in the percentage of unsatisfactory smears with only 2.7% of smears required to be repeated due to an unsatisfactory result in 2008/09.

Table 1.9 Percentage of unsatisfactory smears reported in NHS GGC Laboratories

	Percentage of unsatisfactory smears of total number of smears							
Year	IRH*	VOL*	SGH	GRI	STOB	VIC	NHSGGC	Scotland
2000/01	6.0%	7.6%	9.1%	7.2%	7.6%	10.2%	**7.7%**	8.5%
2001/02	5.5%	6.3%	7.3%	10.5%	4.2%	8.5%	**8.1%**	8.8%
2002/03	5.9%	6.8%	5.9%	3.9%	n/a	n/a	**5.2%**	7.4%
2003/04	3.4%	4.6%	6.3%	3.9%	n/a	n/a	**4.4%**	3.9%
2004/05	2.7%	2.6%	2.2%	1.9%	n/a	n/a	**2.3%**	2.2%
2005/06	2.3%	n/a	2.9%	1.6%	n/a	n/a	**2.1%**	2.2%
2006/07	2.5%	n/a	3.0%	2.1%	n/a	n/a	**2.5%**	2.4%
2007/08	1.8%	n/a	2.7%	2.8%	n/a	n/a	**2.4%**	2.8%
2008/09	2.0%	n/a	2.7%	3.1%	n/a	n/a	**2.7%**	3.0%

Source 2000-2007 Cervical Cytology System (CCS); 2007/08 - Labs (SCCRs)

Scotland figures from ISD Website

*IRH/VOL - includes unsatisfactory smears repored for Argyll and Bute area

Vale of Leven stopped reporting smears taken as at quarter ending 30th September 2004

Stobhill stopped reporting smears taken as at quarter ending 30th June 2001

Victoria stopped reporting smears taken as at quarter ending 30th September 2001

As part of an initiative to reduce the number of unsatisfactory smears, a sub group has been set up to develop a training programme for staff to update their cytology sampling skills.

Table 1.10 shows the proportion of results reported as abnormal smears in each of the cytopathology laboratories in NHSGGC, after excluding the unsatisfactory tests between 2000/01 and 2008/09. Abnormal smears results include: borderline, mild, moderate and severe dyskaryosis, severe dyskaryosis/invasive, glandular abnormality and adenocarcinoma. 9.9% of smears were reported as abnormal in 2008/09.

Table 1.10 Percentage of abnormal smears reported in NHS GGC Laboratories

	Percentage of Abnormal smear results of total satisfactory smears							
Year	IRH*	VOL*	SGH	GRI	STOB	VIC	NHSGGC	Scotland
2000/01	7.8%	8.6%	10.2%	11.2%	10.1%	8.5%	**9.4%**	8.0%
2001/02	7.2%	7.4%	7.8%	12.4%	16.5%	8.5%	**9.5%**	8.3%
2002/03	7.0%	8.3%	5.7%	10.0%	n/a	n/a	**8.1%**	7.3%
2003/04	7.6%	10.2%	5.2%	10.3%	n/a	n/a	**8.5%**	7.2%
2004/05	7.8%	7.4%	6.0%	9.8%	n/a	n/a	**8.2%**	7.2%
2005/06	7.6%	n/a	6.7%	10.7%	n/a	n/a	**8.7%**	7.4%
2006/07	8.2%	n/a	7.6%	10.2%	n/a	n/a	**8.9%**	7.6%
2007/08	8.5%	n/a	7.1%	11.1%	n/a	n/a	**9.3%**	7.7%
2008/09	9.6%	n/a	8.5%	10.9%	n/a	n/a	**9.9%**	8.4%

*IRH/VOL - includes unsatisfactory smears reported for Argyll and Bute area

VOL stopped reporting smears taken as at quarter ending 30th September 2004

STOB stopped reporting smears taken as at quarter ending 30th June 2001

VIC stopped reporting smears taken as at quarter ending 30th September 2001

Source 2000-2007 Cervical Cytology System (CCS); 2007/09 - Labs (SCCRs)

Scotland figures from ISD Website

Table 1.11 shows the detailed breakdown of smear results profile reported by NHSGGC laboratories.

Of the 116,055 smears tests received by the laboratories, 112,978 (97.3%) were processed. 90.1% of smears processed were reported to be negative; 6.2% to be borderline squamous; 2.3% mild dyskaryosis and 1.2% to have moderate to severe dyskaryosis. Appendix A shows the management and follow up advice for cytology results.

Table 1.11 Result rrofiles by age band: 1 April 2008 - 31 Mar 2009 (compiled from quarterly reports)
All NHS Greater Glasgow and Clyde Laboratories

Age Band	Under 20	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 and Over	Total age 20 - 65+	%Satisfactory	%Cumulative	Total age 20 60	%Satisfactory	%Cumulative
Unsatisfactory	35	411	343	305	350	411	364	350	395	99	14	**3077**			**2998**		
%Total	2.7	2.3	2.1	2.2	2.3	2.5	2.6	3.3	4.9	4.6	5.6	**2.65**			**2.64**		
Negative	954	13666	13827	12365	13851	14677	12860	9952	7459	1978	226	**101815**	90.12	90.12	**99953**	90.26	90.26
Borderline Squamous	229	2293	1391	815	761	693	454	245	135	49	6	**7071**	6.26	96.38	**6808**	6.15	96.40
Borderline Glandular	0	2	9	9	10	10	10	1	2	1	0	**54**	0.05	96.43	**54**	0.05	96.45
Mild Dyskaryosis	76	930	553	307	245	219	135	79	24	15	3	**2586**	2.29	98.71	**2497**	2.25	98.71
Moderate Dyskaryosis	14	198	196	123	75	68	35	14	10	5	2	**740**	0.65	99.4	**723**	0.65	99.4
Severe Dyskaryosis	1	123	192	112	83	71	32	18	9	3	1	**645**	0.57	99.9	**641**	0.58	99.9
Severe Dyskaryosis/?Invasion	0	0	3	5	3	1	0	2	1	0	0	**15**	0.01	100.0	**15**	0.01	100.0
Glandular Abnormality	0	4	13	5	13	6	6	2	2	0	0	**51**	0.05	100	**51**	0.05	100
Endocervical Adenocarcinoma	0	0	0	0	0	0	0	0	1	0	0	**1**	0.00	100	**1**	0.00	100
Other Malignancy	0	0	0	0	0	0	0	0	0	0	0	**0**	0.00	100	**0**	0.00	100
Total including unsatisfactory results	1309	17627	16527	14046	15391	16156	13896	10663	8038	2150	252	**116055**			**113741**		
Total excluding unsatisfactory results	1274	17216	16184	13741	15041	15745	13532	10313	7643	2051	238	**112978**			**110743**		

	All Ages	20-60 years
N Abnormal	11163	10790
% abnormal	9.88	9.74

Source: Scottish Cervical Call Recall System (SCCRS)

Report Definitions

1 Smears are those processed at a lab , independent of a woman's area of residence or where smeared
2 Smear counts for the originating lab
3 Date received into the lab is the qualification date - report won't run until all smears completed for reporting period. Date authorised may be after end of reporting period.
4 Only lab processed smears count , not white cards or other historic adjustments/additions
5 Smears must be authorised to qualify
6 If a woman has more than one smear, each one will count.
7 Result proportions are calculated excluding unsatisfactory results
8 Age is age at date of exam

Invasive cervical cancer audit

The aim of the cervical screening programme is to reduce the incidence of and mortality from invasive cervical cancer. It is recognised that in order to assess the effectiveness of the cervical screening programme, the audit of the screening histories of women with invasive cervical cancer is fundamental. This audit is an important process that helps to identify variations in practice, encourages examinations of the reasons for these variations, and helps to identify the changes required to improve the service.

In 2008, we reviewed the notes of women who developed invasive cervical cancer. Sixty-five patients were diagnosed with invasive cervical cancer in 2008. The number of patients diagnosed with invasive cervical cancer in 2007 was 67; 49 in 2006; and 50 in 2005.

Table 1.12 shows the age distribution at the age of diagnosis for years 2005 to 2008. The largest number of cervical cancers occurred in women aged between 30 and 39 years.

Table 1.12 Number of NHSGGC residents with invasive cervical cancers by age at diagnosis and year of diagnosis

Age	Year of diagnosis			
	2005	2006	2007	2008
20 - 29	5	4	7	9
30 - 39	13	14	29	21
40 - 49	14	11	20	14
50 - 59	10	6	3	11
60 - 69	2	5	5	5
70 - 79	3	6	2	2
80+	3	3	1	3
Total	**50**	**49**	**67**	**65**

Source: NHSGGC Invasive Cancer Audit database October 2009

Table 1.13 shows the distribution of clinical stage at diagnosis over a four year period from 2005 to 2008.

Table 1.13 Total number of women with invasive cervical cancers split by diagnosis and year

Clinical stage of diagnosis	2005	2006	2007	2008	Total
1a1 (less than 3mm deep and >=7mm wide)	13	15	18	17	63
1a2 (3-5mm deep and <7mm wide)	0	0	4	1	5
1b (confined to cervix)	12	10	18	16	56
2 or greater (spread outwith cervix)	23	22	27	31	103
No Details	2	2	1	0	5
Total	**50**	**49**	**67**	**65**	**231**

Source: NHSGGC Invasive Cancer Audit Database

Table 1.14 shows that 31 of 65 invasive cervical cancers were detected at screening in 2008; 25 of 67 in 2007; 16 of 49 in 2006 and 33 of 50 in 2006. The rest of the cases presented to the service with symptoms.

Table 1.14 Total number of women with invasive cancers split by modality of presentation and year

Modality of Presentation	Year of diagnosis			
	2005	2006	2007	2008
Screen Detected	33	16	25	31
Symptomatic, last smear date <5 yrs	4	9	14	14
Symptomatic, last smear date >5 yrs	7	9	19	13
Symptomatic, No previous smear	6	14	9	7
No Details	0	1	0	0
Total	**50**	**49**	**67**	**65**

Source: NHSGGC Invasive Cancer Audit database

Some of the screen detected cancers might have had an opportunistic smear while presenting with genital tract complaints.

Table 1.5 shows that 25 women out of the 50 with invasive cervical cancer in 2005, 22 women of 49 in 2006, 34 women of 67 in 2007 and 31 women of 65 in 2008 had a complete smear history.

Over the four years audited, 33 women out of the 231 that developed cancer had never had a smear.

Table 1.15 Smear history of women with invasive cervical cancer

Smear History	Year of diagnosis			
	2005	2006	2007	2008
Complete	25	22	34	31
Incomplete	20	13	24	27
No Previous Smear	4	13	9	7
Not Known	1	1	0	0
Total	**50**	**49**	**67**	**65**

Source: NHSGGC Invasive Cancer Audit database

* Apart from index smear ie the abnormal smear causing referral

Table 1.16 shows the status of the women included in the audit of invasive cancer at the time when the audit was carried out. There were 23 deaths over the four years audited; 69 women were under follow up at colposcopy service and 127 were under follow up in the oncology service.

Table 1.16 Follow up status of the women with invasive cervical cancer

Status	Year diagnosis			
	2005	2006	2007	2008
Lost to Colposcopy service	1	0	1	1
On Follow-up at Colposcopy	15	18	19	17
On Follow-up at Oncology/Beatson	23	21	41	42
Early Recall	1	0	0	0
Death	8	8	3	4
Unknown	2	1	1	1
No Details		1	2	0
Total	**50**	**49**	**67**	**65**

Source: NHSGGC Invasive Cancer Audit database

Information systems

Scottish Cervical Call Recall System (SCCRS)

The Scottish Cervical Call Recall System (SCCRS) implemented in 2007 provides women with a complete e-health record detailing their whole smear history which professionals involved with the screening programme access. Since the system was implemented, the turnaround time for smears reported has reduced. This is because results are automatically available for the smear takers to view in SCCRS and patients are sent notification directly from Scottish Cervical Call Recall System. The system also produces automated reports and more recently allows for individual performance data to be produced.

National Colposcopy Clinical Information Audit System (NCCIAS)

The National Colposcopy Clinical Information Audit System (NCCIAS) is used by Colposcopy staff for the clinical management and audit of all colposcopy referrals.

Initiatives to improve uptake

In an effort to improve uptake we continue to provide comparative practice-based uptake figures to all practices and to the Community Health Care Partnerships.

A subgroup of the NHS Greater Glasgow and Clyde Cervical Screening Steering Group oversees the promotion of the cervical screening among hard to engage groups. Initiatives are aimed at women with learning difficulties, those in long term institutions, women in travelling communities, women in long term care and women abusing alcohol. Following intense media publicity surrounding Jade Goody's death from cervical cancer, we have seen increased awareness and participation in the programme. A national group has been set up to oversee a new communication strategy informed by the research carried out in Scotland in which NHS Greater Glasgow and Clyde residents were sampled.

Health Inequalities

An Equality Impact Assessment was carried out in October 2009 to ensure that eligible population receive equal access to screening and services. The outcome of the assessment will be reported to the Cervical Steering Group to consider and take forward any recommendations that arise from the assessment.

Challenges and future priorities

- The human papilloma virus (HPV) immunisation programme was implemented in September 2008. The programme routinely vaccinates girls aged 12 - 13 years of age against cervical cancer. The cervical screening programme will continue because the vaccine does not protect against all HPV types that may cause cervical cancer.

- The challenge is to ensure that women understand the need for continuing cervical screening despite the HPV vaccination being introduced. The information materials developed for the vaccination campaign include the message on the need to continue to attend cervical screening.

- To reduce the number of unsatisfactory smears, a cervical skills update training programme will be developed and offered to all community smear takers from 2010.

- To complete the Equalities Impact Assessment and consider and take forward any recommendations reported.

Appendix 1.1

Management And Follow-Up Advice For Cytology Results

SMEAR REPORT	MANAGEMENT
Negative	36 month recall
Negative, after borderline	Further repeat at 6 months Return to routine recall after 2nd negative.
Negative, after mild	Further repeat at 6 & 18 months. Return to routine recall after 3rd negative
Unsatisfactory	3 month recall. Refer after third in succession.
Borderline Squamous Changes +/- HPV	6 month recall. Refer after third. ? High grade – Flag as such and Refer to Colposcopy on 1st.
Borderline Glandular Changes	6 month recall. Refer after second.
Mild dyskaryosis	Repeat in 6 months Refer after second. OR Refer to Colposcopy on 1st
Glandular abnormality	Refer to Colposcopy
Moderate Dyskaryosis	Refer to Colposcopy
Severe Dyskaryosis	Refer to Colposcopy
Severe Dyskaryosis / invasive	Refer to Colposcopy
Adenocarcinoma – Endocervical	Refer to Colposcopy
Endometrial Adenocarcinoma	Refer to Gynaecology (Early recall will not be triggered for such cases as the detected abnormality is not relevant to cervical screening)

Management and follow up for cytology results: post colposcopy following abnormal cytology)

Colposcopy outcome	Management
Normal colposcopy or benign biopsy	Smears at 6 and 18 months. If both smears are negative, return to routine recall.
CIN 1 (including untreated)	Smears at 6, 12 and 24 months. If negative, return to routine recall, if not, return to routine recall after 2nd negative.
CIN 2, CIN 3, Microinvasive or CGIN	Smears at 6 and 12 months. Then annual smears to 5 years. If negative, return to routine recall.

- Borderline changes in post-colposcopy follow up, repeat. Refer after 3rd.
- Any dyskaryosis in post-colposcopy follow up, refer back to colposcopy

Post Total Hysterectomy

No History of CIN/CGIN	No Recall
CIN or CGIN in history	No recall
CIN or CGIN within last 5 years in history - CIN/CGIN in specimen, completely excised	Smear at 12 months. If negative, no further recall.
CIN or CGIN in history - CIN/CGIN in specimen, incompletely excised	Smears at 6, 12 and 24 months. If negative, no further recall

CIN = cervical intraepithelial neoplasia
CGIN = cervical glandular intraepithelial neoplasia

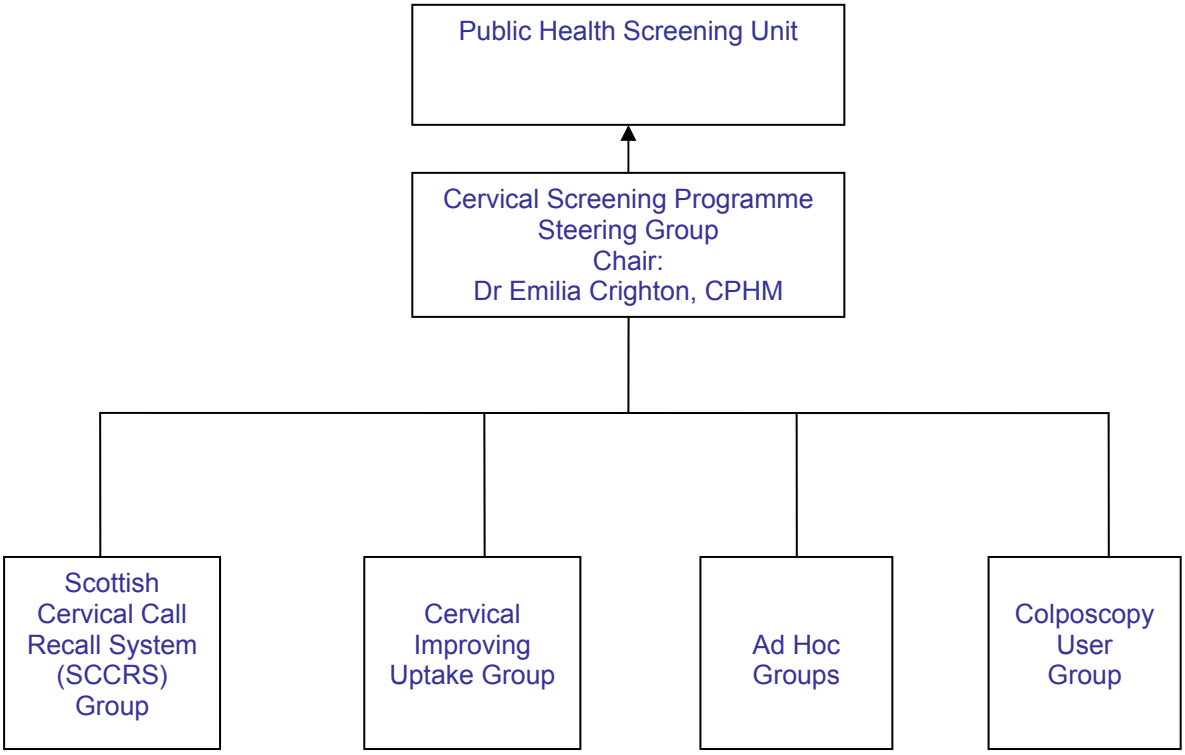
Appendix 1.2

Members of Cervical Screening Steering Group (As at April 2009)

Dr Emilia Crighton	Consultant in Public Health Medicine (Chair)
Mrs Donna Athanasopolous	PERL Resources Co-ordinator
Dr Urszula Bankowska	Clinical Director, Sandyford
Dr Margaret Burgoyne	Head of Service, Pathology
Dr Kevin Burton	Consultant Gynaecologist
Dr Laura Cassidy	Consultant Gynaecologist
Mr Mark Darroch	IM&T Project Manager
Dr Lorna Dunlop	GP/Referrals and Protocols Advisor (to July 2008)
Mrs Fiona Gilchrist	Assistant Programme Manager, Screening Dept
Dr Mary Hepburn	Consultant Obstetrician/Gynaecologist
Mrs Kathy Kenmuir	Primary Care Support Nurse
Dr James Kennedy	Consultant Gynaecologist – MCN Cancer Network representative (to March 2009)
Dr Margaret Laing	Staff Grade in Cytology/Colposcopy
Mrs Annette Little	Information Analyst
Miss Denise Lyden	Project Officer
Ms Lois Marshall	SCI Gateway Service Delivery Manager
Ms Cynthia Mendelsohn	Lay Member
Mrs Eleanor McColl	Screening Service Delivery Manager
Ms Jane McNiven	Practice Manager
Ms Louise McTaggart	Contractor Services Manager
Dr Alan Mitchell	Clinical Director Renfrewshire CHP
Mrs Elizabeth Rennie	Programme Manager, Screening Dept
Ms Claire Scott	Health Improvement Senior (Cancer)
Dr Mary Stephen	Consultant Pathologist (to October 2008)
Dr Millicent Thomas	Consultant Pathologist
Dr Cynthia Van der Horst	Consultant Cytopathologist
Ms Patricia Weir	Lay Member
Dr Barbara West	General Practitioner
Ms Jackie Wright	Practice Nurse

Appendix 1.3

Reporting Structure:
Cervical Screening Programme



CHAPTER 2: BREAST SCREENING

SUMMARY

- This report represents interim data for the breast screening round May 2006 – May 2009 in NHS Greater Glasgow and Clyde.
- From May 2006 to May 2009, there were 142,829 eligible women across NHS Greater Glasgow and Clyde.
- 102,331 women (72% of eligible women) were invited for breast screening during period reported.
- 72,220 women (71% of those invited) attended breast screening during the reported period.
- There were 495 women who were diagnosed with breast cancer following screening.
- NHS Greater Glasgow and Clyde implemented two view mammography in Clyde in May 2009 and will extend it across Greater Glasgow by March 2010.
- In May 2009, a breast screening protocol for women in specific categories was approved and implemented across NHS Greater Glasgow and Clyde. The protocol aims to ensure that all groups are invited to take part in the breast screening programme and are followed up appropriately.
- A sub group has recently been set up to explore the opportunity of educating women about lifestyle choices and risk factors associated with cancer during their normal screening appointment.

CHAPTER 2: BREAST SCREENING

Background

Breast cancer is the most common cancer in women in Scotland. Incidence rates continue to rise with a significant 11% increase in the last ten years. This is partly due to increased detection by the Scottish Breast Screening Programme and in the context of changes in the prevalence of known risk factors, such as age at birth of first child, and alcohol consumption. (Information Statistics Division 2007)

The Scottish Breast Screening Programme was introduced in February 1987 following the publication of the Forrest Report (1986). Breast screening was implemented in 1988 in North Glasgow, 1991 in South Glasgow and in October 1990 in Argyll & Clyde when women aged 50 to 64 were invited for a mammogram every three years.

This report represents interim data from May 2006 to February 2008 for the breast screening round 2006 – 2009 in NHS Greater Glasgow and Clyde.

Aim of screening programme

The purpose of breast screening by mammography is to detect breast cancers at the earliest possible time so that treatment may be offered promptly. It is believed that very early detection of breast cancers in this way can result in more effective treatment, which may be more likely to reduce deaths from breast cancer.

Eligible population

Women residents of NHS Greater Glasgow and Clyde area who are aged 50-70 years are invited for a routine breast screen once every three years. Screening is also available to women over 70 years on request.

The screening test

The current screening method used consists of all women having both mammographic views at the first screening test (called prevalent screen). Only one mammographic view will be taken at any subsequent screening test (called incident screens). The test is a straightforward procedure involving X-rays being taken of each breast using an X-ray machine (also known as a mammogram).

Screening setting

The West of Scotland Breast Screening Centre screens NHS Greater Glasgow and Clyde residents either in the static centre in Glasgow or in mobile van units that visit pre-established sites across the NHS Greater Glasgow and Clyde area.

Screening pathway

Every woman registered with a GP will receive her first invitation to attend for a mammogram at her local breast screening location sometime between her 50th and 53rd birthday and then three yearly thereafter until her 70th birthday. The West of Scotland Breast Screening Centre also contacts all long-stay institutions to offer screening to eligible residents.

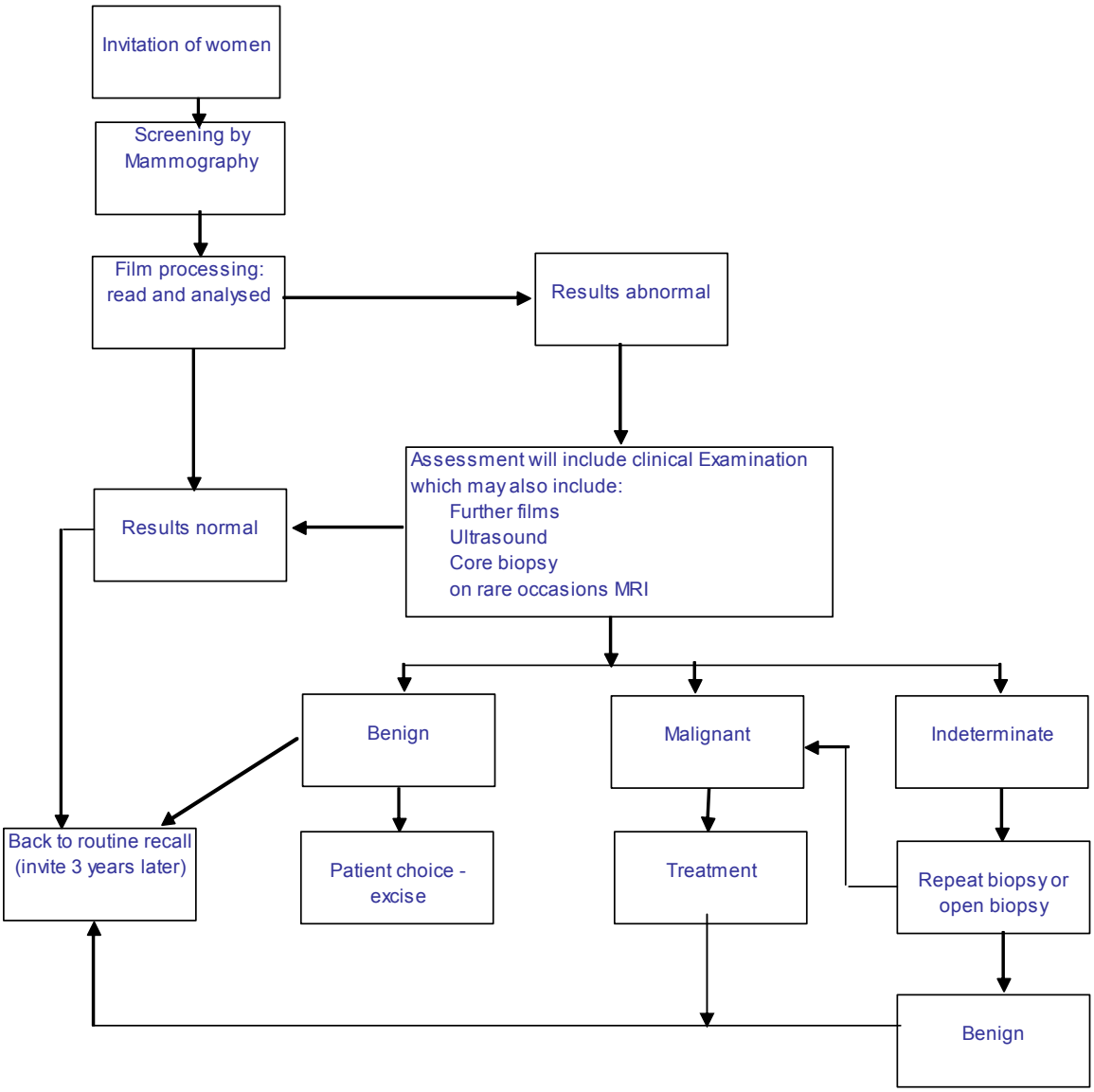
The mammograms taken during the screening visit are examined and the results sent to the woman and her GP. A proportion of women attending for screening will be recalled if the picture was not clear enough or asked to go to an assessment clinic for further tests if a potential abnormality has been detected. The tests include ultrasound and core biopsies.

If a woman is found to have cancer, she is referred to a consultant surgeon to discuss the options available to her. This usually involves surgery: A lumpectomy where just the lump and a small amount of surrounding tissue is removed, or a mastectomy where the whole breast is removed. Surgery is likely to be followed by radiotherapy, chemotherapy or hormone therapy or a mixture of these.

The exact course of treatment will depend on the type of cancer found and the woman's personal preferences.

In NHS Greater Glasgow and Clyde the assessment clinics are carried out in the West of Scotland Breast Screening Centre situated in Glasgow. The surgical treatment is carried out by designated teams in the Western Infirmary and Victoria Infirmary and a small proportion of women with palpable tumours are referred for treatment to local breast teams.

Figure 2.1 Screening pathway



Delivery of screening programme 2008/09

Uptake of breast screening in NHS Greater Glasgow and Clyde

The number of women eligible for breast screening across the area of Greater Glasgow and Clyde from May 2006 to March 2009 was 142,829 **(Table 2.1).** Eligible women were identified using the Community Health Index and then invited for breast screening using the NHSGGC CH(C)P SAPE system.

Table 2.1 Total number of women eligible for breast screening split by age bands and CH(C)P for period May 2006 to May 2009

CH(C)P	50-54	55-59	60-64	65-70	50-70	Screening Population per year [2]
East Dunbartonshire	4197	3733	3571	3538	15039	5013
East Glasgow	4206	3435	3250	3538	14429	4810
East Renfrewshire	3332	2851	2809	2721	11713	3904
Inverclyde	2903	2685	2600	2621	10809	3603
North Glasgow	3031	2554	2348	2696	10629	3543
North Lanarkshire[1]	683	615	603	538	2439	813
Renfrewshire	6025	5617	5354	5229	22225	7408
South East Glasgow	3164	2600	2164	2275	10203	3401
South Lanarkshire[1]	2229	1865	1723	1697	7514	2505
South West Glasgow	4079	3035	2845	3068	13027	4342
West Dunbartonshire	3430	2893	2830	2738	11891	3964
West Glasgow	3982	3100	2844	2985	12911	4304
NHSGGC Total	**41261**	**34983**	**32941**	**33644**	**142829**	**47610**

Source: NHS GGC CH(C)P SAPE 2008

SAPE: Small Area Population Statistics

Note:

[1]. NHS Greater Glasgow and Clyde residents only

[2] Screening Population - Total population divided by 3 years

Table 2.2 shows the numbers and the proportion of the eligible population invited; numbers screened; and the interim uptake rate split by Community Health (Care) Partnership (CH(C)P) area for the period May 2006 to May 2009. 102,331 (71.6%) women living in NHS Greater Glasgow and Clyde area were invited to attend breast screening.

72,220 women (71% of those invited) attended breast screening during the reported period. There were 495 women who were diagnosed with breast cancer following screening.

Table 2.2: Interim progress report of Breast Screening programme by CH(C)P area for the period May 2006 to May 2009

CH(C)P	Number invited[1]	Number attended[1]	Number Cancers Detected[1]	% Attend of those invited	%Cancers of those Attended
East Dunbartonshire	7040	5631	33	80.0	0.6
East Renfrewshire	4933	3628	23	73.5	0.6
Glasgow East	11928	8077	46	67.7	0.6
Glasgow North	8009	5016	39	62.6	0.8
Glasgow South East	11341	8152	73	71.9	0.9
Glasgow South West	3911	2635	15	67.4	0.6
Glasgow West	9293	6292	43	67.7	0.7
North Lanarkshire[2]	2240	1718	11	76.7	0.6
South Lanarkshire[2]	4934	3666	21	74.3	0.6
Inverclyde	10649	7277	43	68.3	0.6
Renfrewshire	21895	15776	117	72.1	0.7
West Dunbartonshire	6158	4352	31	70.7	0.7
NHSGGC Total	**102331**	**72220**	**495**	**70.6**	**0.7**

Source: [1] West of Scotland Breast Screening Data

Notes

[2] NHS Greater Glasgow and Clyde residents only

Progress/Completion Details:

Greater Glasgow: data complete to end of March 2009. Current round expected to finish approxi

Inverclyde, Renfrewshire, West Dunbartonshire: Round completed - May 2006 to May 2009

Health inequalities

Work started in May 2009 to carry out an Equality Impact Assessment of the breast screening programme. The work is due to be completed by December 2009.

A sub group was set up to consider how best to identify and engage with hard to reach groups who cannot otherwise be identified by the Community Health Index, for example travellers and the homeless. The group also looked at developing a process for screening women in nursing homes and patients in long stay care establishments.

A breast screening protocol for women groups that could discriminated by the existing screening process was approved and introduced across NHS Greater Glasgow and Clyde in May 2009. The protocol aims to ensure that all groups are invited to take part in the breast screening programme and are followed up appropriately.

Promoting uptake

There have been several initiatives to promote uptake of the breast screening programme. These included inviting women from ethnic minority and learning disability groups who are approaching the eligible age range to visit the centre and familiarise themselves with the equipment. This initiative has proved to be a beneficial exercise.

There has been much in the recent literature looking at the effect of obesity and lack of physical activity as well as alcohol consumption being contributing factors to developing cancer.

A sub group has recently been set up to explore the opportunity of raising the issue with women about lifestyle choices, and risk factors associated with cancer, during their normal screening appointment.

It is planned that a staff training programme will be developed to introduce staff to Health Behaviour Change theories and Brief Intervention skills. Staff will then have the knowledge and skills to advise women who attend screening of risk factors associated with cancer and offer women the opportunity to discuss lifestyle changes, like physical activity, healthy eating, weight management; alcohol consumption and smoking. The training will also enable staff to signpost women to the appropriate services that are available. It is planned that training will be piloted and evaluated with a view to rolling out in 2010.

Two view mammography

In Scotland, women are offered two view mammography at their first screen, and a single oblique view mammogram in subsequent screens.

All Boards received funding to implement two view mammography at every screen. This was introduced in Clyde in May 2009 and is to be rolled out in Greater Glasgow by March 2010.

There had been concerns with waiting times for assessment due to radiology vacancies. However, the West of Scotland Breast Centre has now been able to recruit half of the vacant radiographic retirement posts and will continue with recruiting the remaining vacancies.

Additional mobile van is in place and the Centre has submitted a proposal for an additional mammography unit.

Future developments

Digital Mammography

Following the publication by NHS Quality Improvement Scotland (NHS QIS) of a Health Technology Assessment (HTA) on the introduction of digital mammography into the Scottish Breast Screening Programme (SBSP), work was carried out to assess the requirements for the implementation of digital mammography in the near future.

A business case was submitted to NSD to purchase a digital mammography unit.

Challenges and future priorities

To implement two view mammography in Greater Glasgow by March 2010.

To follow up on the Equality Impact Assessment for breast screening programme.

To continue to promote and encourage uptake of the screening programme through health promotion activities.

To develop and implement staff training programme to promote healthy lifestyles by 2010.

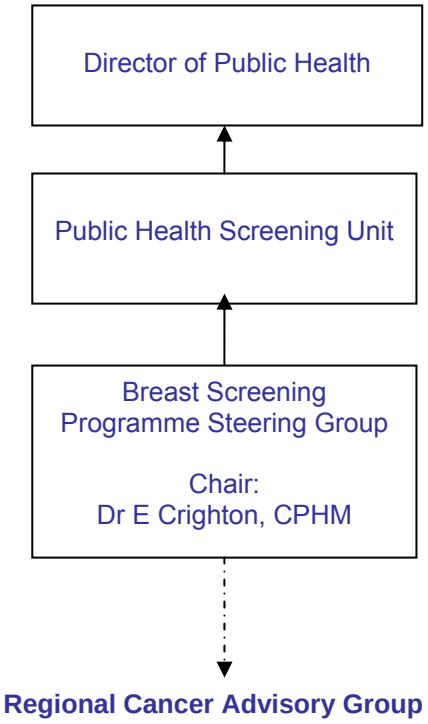
Appendix 2.1

Members of Breast Screening Steering Group (As at March 2009)

Dr Emilia Crighton	Consultant in Public Health Medicine (Chair)
Mrs Donna Athanasopolous	PERL Resources Co-ordinator
Mrs Brenda Bellando	Business Manager
Mr Tom Clackson	GMS Contract Manager
Dr Hilary Dobson	Clinical Director
Prof David George	Consultant Breast Surgeon
Mrs Fiona Gilchrist	Assistant Programmes Manager, Screening Dept
Dr Susan Langridge	General Practitioner
Mrs Annette Little	Information Analyst
Miss Denise Lyden	Project Officer
Ms Janet Mair	Regional Registration Manager
Mrs Eleanor McColl	H&IT Service Delivery Manager
Ms Cynthia Mendelsohn	Lay Member
Dr Alan Mitchell	Clinical Director
Ms Ann Mumby	Superintendent Radiographer
Mrs Elaine Murray	Community Liaison Officer
Mrs Elizabeth Rennie	Programmes Manager, Screening Dept
Mrs Claire Scott	Senior Health Improvement Officer
Ms Patricia Weir	Lay Member

Appendix 2.2

Reporting Structure:
Breast Screening Steering Group



Key:
_____ Direct Reports
- - - - - - - Network Links

CHAPTER 3: INTERIM REPORT FOR BOWEL SCREENING PROGRAMME FOR PERIOD 1 APRIL 2009 TO 31 DECEMBER 2009

SUMMARY

- Colorectal (Bowel) Cancer is the third most common cancer in Scotland. Every year over 3,400 people are diagnosed with the disease.

- The Scottish Bowel Screening Programme was launched in 2007 and will be fully implemented across Scotland by the end of 2009.

- NHS Greater Glasgow and Clyde implemented the bowel screening programme in April 2009. During 2008/09, detailed planning for implementation was carried.

- The programme will invite all men and women between the ages of 50 – 74 years registered with a General Practice. Other eligible individuals who are not registered with a General Practice will be able to participate. Thereafter, all individuals will be routinely recalled every two years.

- It is estimated that, from 1 April 2009 to 31 March 2010, 244,000 NHS Greater Glasgow and Clyde residents will have been invited to participate in the Bowel Screening programme.

- All eligible individuals are sent a teaser letter two weeks before the screening kit is sent to advise them that they will be sent the bowel screening kit.

- 135,440 teaser letters were sent to eligible participants.

- 66,571 test results were reported by the Bowel Screening laboratory and this gives an estimated uptake of 50%.

- 1,645 patients received a positive result. This represented a positivity screening rate of 2.5%. This was higher than the national average range of 1.9% to 2.3% reported in the Scottish Bowel Screening Programme KPI reports (www.ISDscotland.org 25 August 2009) .

- Of the 1,645 patients screened positive, 1,457 patients were pre-assessed prior to colonoscopy. 84 patients did not respond to the offer of a colonoscopy pre-assessment.

- 1,040 (63.2%) patients completed colonoscopy investigations by 31 December 2009. 3.1% (46) patients refused to take up the offer of a colonoscopy. Of the total eligible population invited to take part in bowel screening, 84 (6 in 10,000) cancers were detected.

- To minimise the complication rates for colonoscopy, colonoscopy skills update training and continuous audit for screening colonoscopists are implemented.

- A bespoke information management and technology system to support the bowel screening programme was developed in-house. The data collected allows staff to monitor service performance and track patients through the process from point of referral to diagnosis and treatment for colorectal cancer.

- NHS Greater Glasgow and Clyde has implemented several initiatives to promote uptake based on experience from Breast Screening. Primary care staff and Health Promotion leads in Community Health (Care) Partnerships are involved by displaying promotional materials and engaging with local communities to promote and encourage the uptake of bowel screening.

- A TV, radio and poster campaign was commissioned by NHS Greater Glasgow and Clyde which ran from April to August 2009. The evaluation of the campaign reported that by using TV advertising, TV awareness was 46%, and the total campaign awareness was 53%.

CHAPTER 3: INTERIM REPORT FOR BOWEL SCREENING PROGRAMME FOR PERIOD 1 APRIL 2009 TO 31 DECEMBER 2009

Background

Bowel Cancer is the third most common cancer in Scotland. Every year over 3,400 people are diagnosed with the disease. In NHS Greater Glasgow and Clyde, 434 people aged between 50 and 74 are diagnosed with bowel cancer in 2006. *(Colorectal Cancer Incidence (ICD10 C18 to C20) 2006).*

The Scottish Bowel Screening Programme was launched in 2007 and will be fully implemented across Scotland by the end of 2009. NHS Greater Glasgow and Clyde implemented the programme in April 2009.

Aim of the screening programme

The purpose of bowel screening by guaiac Faecal Occult Blood test (gFOBt) is to detect colorectal cancers at the earliest possible time so that treatment may be offered promptly. It is believed that very early detection of colorectal cancers in this way can result in more effective treatment which may be more likely to reduce deaths from colorectal cancer. In addition, the removal of precancerous lesions could lead to a reduction in the incidence of colorectal cancer.

Eligible population

The programme invites all men and women between the ages of 50 – 74 years registered with a General Practice. Other eligible individuals who are not registered with a General Practice such as prisoners, armed forces, homeless, and individuals in long-stay institutions would also be able to participate following NHS Greater Glasgow and Clyde local agreements. Thereafter, all eligible individuals will be routinely recalled every two years.

It is estimated that, from 1 April 2009 to 31 March 2010, 244,000 NHS Greater Glasgow and Clyde residents will have been invited to participate in the Bowel Screening programme.

The screening test

Guaiac Faecal Occult Blood test (gFOBt) testing kit is completed at home and returned to the National Bowel Screening Centre in Dundee for analysis.

Screening pathway

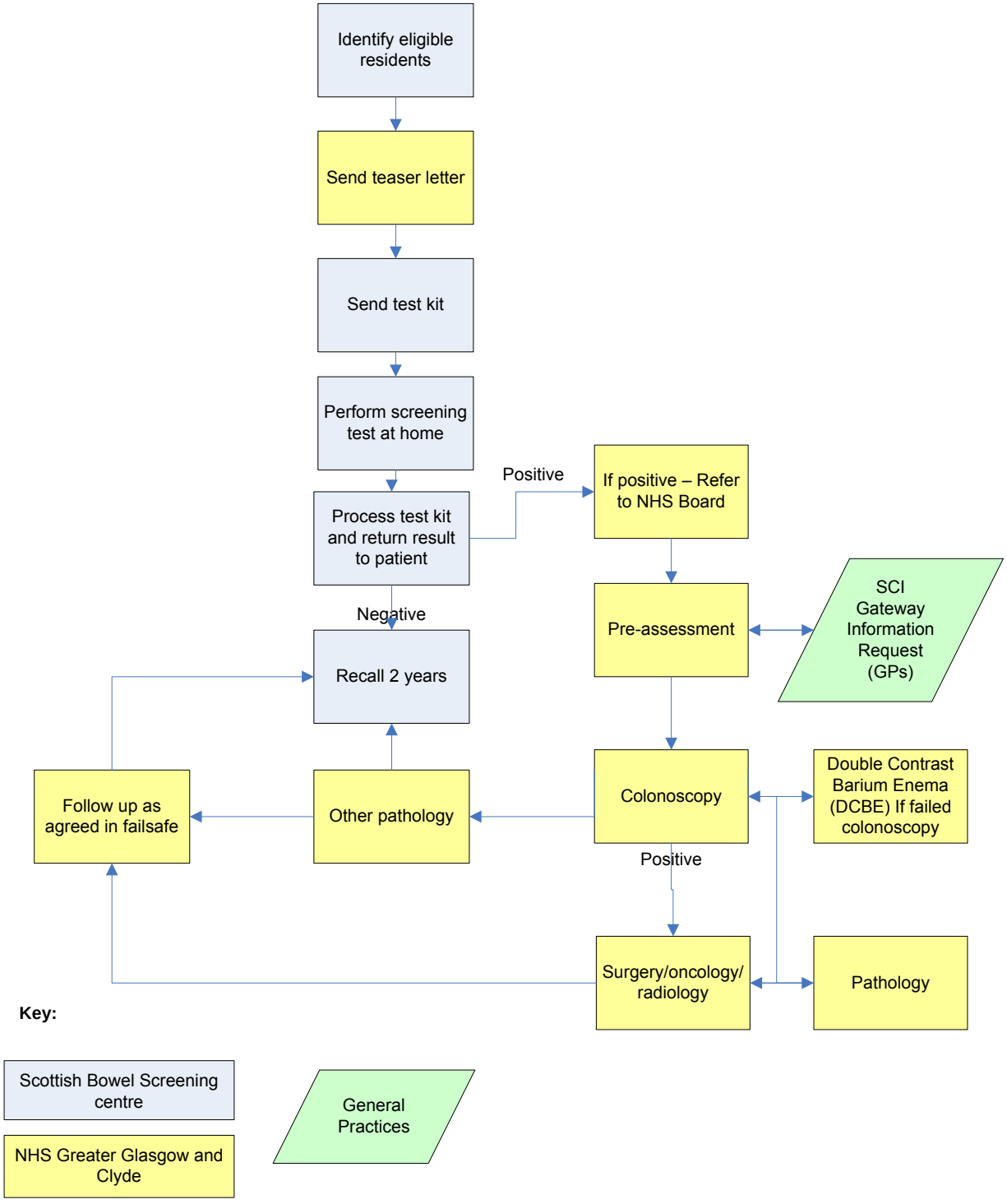
Eligible NHS Greater Glasgow and Clyde residents that are due to be invited to take part in the bowel screening programme are sent a “teaser” letter before they are sent an invitation letter and screening kit. The letter explains the programme and encourages participants to take the test.

The National Bowel Screening Centre in Dundee issue screening kits to all eligible residents of NHS Greater Glasgow and Clyde to screen at home. The kits are then posted by return to the National Laboratory for processing.

After analysis, the National Centre reports, via an IT system, results of all positive tests to the Board. The National Centre also informs the patient and the patient’s general practitioner by letter.

Patients with positive screening results are invited to contact NHS Greater Glasgow and Clyde administrative staff to arrange for a telephone assessment and be offered a colonoscopy. If required, they are then referred for further diagnostic investigations and treatment. **Figure 3.1** gives an overview of the bowel screening pathway.

Figure 3.1 Overview of bowel screening pathway

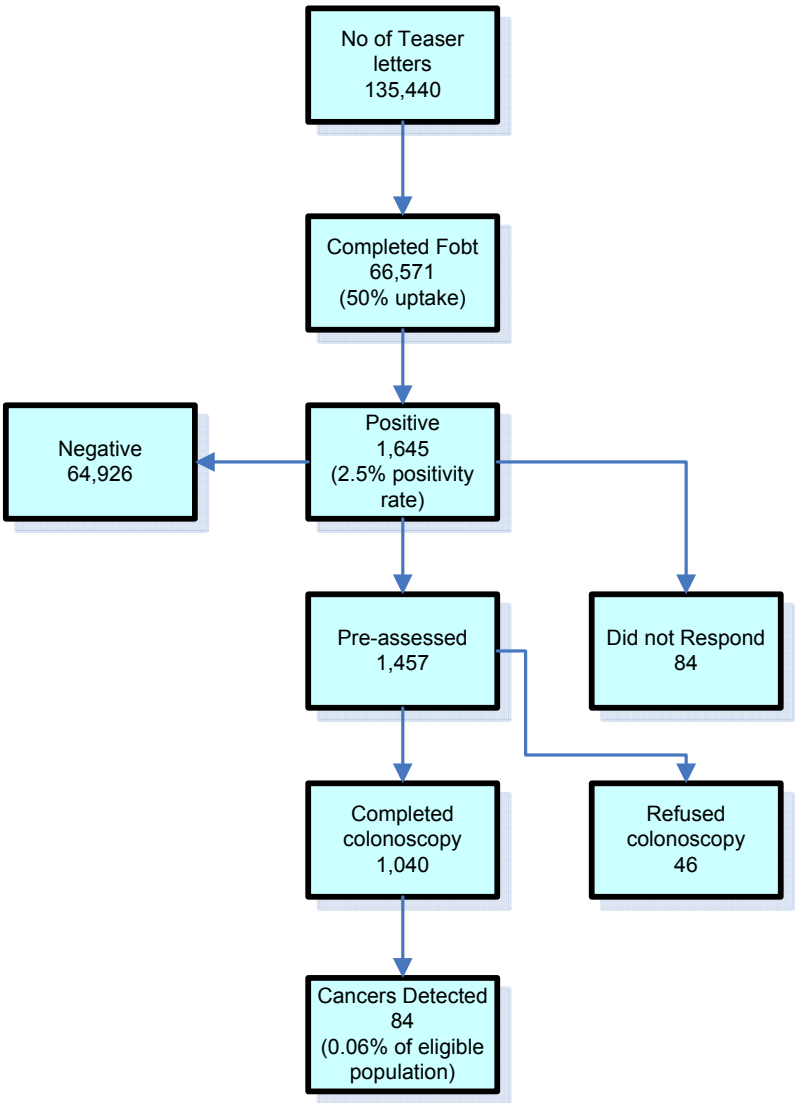


Performance on uptake and delivery of service – Interim report 1 April to 31 December 2009

Since the launch of the bowel screening programme, 135,440 teaser letters have been sent to eligible participants (see Figure 3.1). 66,571 test results were reported by the Bowel Screening laboratory. This gives an estimated uptake of 50%. The uptake is encouraging as the evaluation of the bowel screening pilot in the UK demonstrated a level of uptake of 30% in deprived communities.

To meet NHS Quality Improvement Scotland's standard level of uptake of 60% will prove particularly challenging for NHS Greater Glasgow and Clyde.

Figure 3.1: Breakdown of NHS Greater Glasgow and Clyde Bowel Screening Activity 1 April 2009 to 31 December 2009



Source: NHS Greater Glasgow and Clyde Bowel Screening IT System.

Note:
1. It was estimated that residents would complete the test within 6 weeks of teaser letter being issued. Therefore the approximate percentage uptake is based on total number of results from 1 April 2009 – 31 December 2009 against the number of teaser letters issued from 1 April 2009 – 28 November 09.

There were 1,645 patients that received a positive result, representing a positivity screening rate of 2.5%. This was higher than the national average range of 1.9% to 2.3% reported in the *Scottish Bowel Screening Programme KPI reports* (*www.ISDscotland.org 25 August 2009*).

Of the 1,645 patients screened positive, 1,457 patients were pre-assessed prior to colonoscopy. 84 patients did not respond to the offer of a colonoscopy pre-assessment.

1,040 (63.2%) patients completed colonoscopy investigations by 31 December 2009. 3.1% (46) patients refused to take up the offer of a colonoscopy. Of the total eligible population invited to take part in bowel screening, 84 (6 in 10,000) cancers were detected.

Quality assurance and training

To minimise the complication rates for colonoscopy, skills update training and audit for screening colonoscopists are implemented. These include:

- an audit of individual's recent practice, number of colonoscopies and rates of completion.

- 2 day course for independent colonoscopists who have not previously attended a JAG course. The course combines elements of educational theory, basic colonoscopy skills and assessment/feedback skills.

- A one day advanced colonoscopy skills refresher course aimed at independent practising colonoscopists who have already achieved 90% completion rates (intention to treat) and wish to improve or develop their therapeutic technical skills. Endoscopic Mucosal Resection (EMR) and standard polypectomy techniques are covered. This course is particularly suited to those colonoscopists participating in bowel cancer screening programme.

Information systems

A bespoke information management and technology system to support the bowel screening programme was developed in-house. The data collected allows staff to monitor service performance and track patients through the process from point of referral to diagnosis and treatment for colorectal cancer.

The final phase of the development will include links to pathology, cancer MDT and cancer waiting times systems.

The application enables staff to monitor service performance, progress against quality assurance standards and NHS Quality Improvement Scotland Standards.

Multidisciplinary staff

The screening programme is delivered and supported by work done by different directorates.

The Screening Department has three WTE administrative staff who send teaser letters, co-ordinate, track and monitor screening patients using NHSGGC's bespoke Bowel Screening IT application.

The colorectal service has four nurse specialists that run eight telephone pre-assessment clinics per week seeing eight patients per clinic. There are 26 screening colonoscopists to deliver in excess of eight colonoscopy sessions per week.

All screening related activity for Health Records is co-ordinated across the Board by one WTE Health Records Officer. Activity includes issuing colonoscopy appointments, bowel preparation and organising patient transport for individuals requiring it.

Promoting uptake

NHS Greater Glasgow and Clyde has implemented several initiatives to promote uptake based on the experience from the breast screening programme.

Teaser letters are sent to patients before they receive their bowel screening kit. The wording of the letter was agreed with the Local Medical Council (LMC).

Primary care was also involved in promoting the programme by displaying promotional materials.

In addition, general practices are involved in the delivery of the diagnostic part of the programme by sending relevant clinical information using SCI Gateway protocol.

The Keep Well programme incorporates advice and encourages eligible participants to take part in the bowel screening programme.

NHS Greater Glasgow and Clyde commissioned a TV and radio advertising and poster campaign to help raise public awareness and maximise the uptake of the bowel screening programme. The campaign ran from April to August 2009. The evaluation of the campaign reported that by using TV advertising, TV awareness was 46% and that the total campaign awareness was 53%. *(Bowel Screening Campaign, MRUK Omnibus, June 2009, The Bridge).*

It is commonly accepted, however, that any marketing campaign that relies on leaflets, posters and advertisements alone may have limited success. What works are approaches that provide information but also explore attitudes, values, and develop skills and ways of addressing barriers to uptake. Also engagement with, and empowerment of, the target group is key to a successful screening programme.

An information session was held in November 2008, inviting representatives from each Health Improvement team in the CH(C)Ps. Their engagement in promoting uptake was vital in order to engage with their own most vulnerable communities.

Subsequently a group was established with Health Improvement leads in CH(C)Ps and they each developed local health promotion plans to engage with local communities to promote bowel screening. These plans will be updated annually as roll out progresses.

In addition, the Health Improvement Team (Acute Planning) developed a cross cutting action plan for vulnerable groups of people who may experience greater inequalities.

They also worked with other partners to develop a pilot training course on Bowel Awareness and Bowel Screening. This course would be delivered to key health and care employees to increase their knowledge and skills, allowing them to talk to patients, clients and community groups. The pilot will be evaluated before deciding on future direction.

Challenges and future priorities

- To complete the final phase of the Bowel Screening IT application
- To complete an equality impact assessment for the bowel screening programme
- To monitor and audit the performance of the programme
- To encourage uptake of the programme through health promotion activities

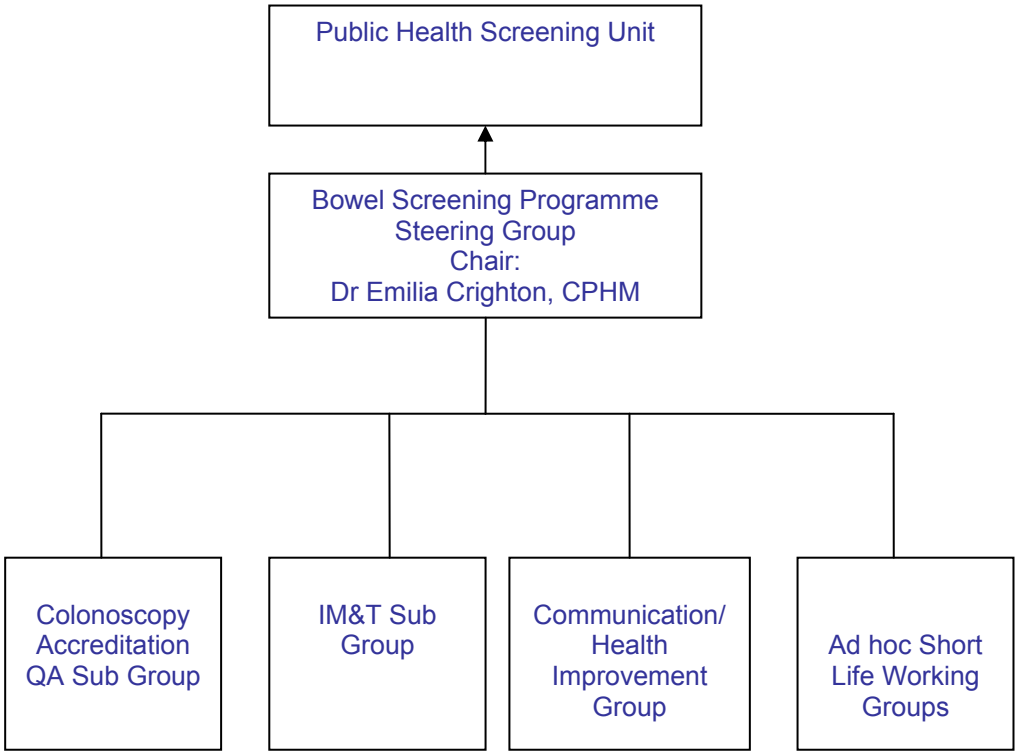
Appendix 3.2

Members of Bowel Screening Steering Group (As at March 2009)

Dr Emilia Crighton	Consultant in Public Health Medicine, Chair
Mr John Anderson	Consultant Surgeon
Mrs Donna Athanasopolous	PERL Resources Co-ordinator
Mr Ewan Bell	Colorectal Nurse Endoscopist
Ms Jacqueline Carrigan	Head of Finance, Surgery and Anaesthetics
Mr Andrew Daly	Head of Financial Planning and Allocations
Dr Fraser Duthie	Lead Clinician for Pathology
Mr Ian Finlay	Consultant Surgeon - Bowel Screening Lead
Mr Patrick Finn	Consultant Colorectal and General Surgeon
Mrs Fiona Gilchrist	Assistant Programmes Manager, Screening Dept
Dr Derek Gillen	Lead Clinician for Endoscopy
Mr Alan Hunter	General Manager
Ms Heather Jarvie	Senior Health Promotion Officer
Mrs Maureen Kirkland	Lay Member
Mrs Annette Little	Information Analyst
Miss Denise Lyden	Project Officer
Miss Flora MacInnes	Business Analyst/ Project Lead
Mrs Eleanor McColl	H&IT Service Delivery Manager
Ms Joyce McFadyen	Health Records Manager
Ms Susan McFadyen	Clinical Service Manager
Mrs Tricia McKenna	Colorectal Nurse Endoscopist
Dr John Morris	Consultant Gastroenterologist
Dr Kenneth O'Neill	Clinical Director, South West CHP
Mr Ian Pickford	Consultant Surgeon
Dr Fat Wui Poon	Lead Clinician for Radiology
Mrs Rebecca Reid	Clinical Service Manager
Dr Robin Reid	Associate Medical Director, Laboratories & Diagnostics
Mrs Elizabeth Rennie	Programmes Manager, Screening Dept
Mrs Claire Scott	Senior Health Improvement Officer
Dr Maureen Smith	General Practitioner/LMC Representative
Ms Paula Spaven	Clinical Effectiveness Manager
Ms Ruth Tipling	Colorectal Nurse Endoscopist
Mrs Ann Wilson	General Manager – General Surgery, Urology and Endoscopy

Appendix 3.3

Reporting Structure:
Bowel Screening Programme



CHAPTER 4: COMMUNICABLE DISEASES IN PREGNANCY

SUMMARY

- To comply with NHS Quality Improvement Scotland standards (*Clinical Standards 2005, Pregnancy and Newborn Screening)*, protocols covering each of the four communicable diseases routinely tested for in pregnancy – HIV, rubella, hepatitis B virus and syphilis - have been developed and implemented throughout Greater Glasgow and Clyde. These protocols are major steps towards a consistent approach to co-ordinating this screening programme throughout the Board area.

- All pregnant women are offered screening for the four communicable diseases, and receive an information leaflet about the screening tests prior to attendance at their first booking visit.

- 16,079 pregnant women had a first booking visit at a Greater Glasgow and Clyde hospital during 2008/09. This includes all first booking visits at hospital, at a clinic outside of hospital, including community outreach and at GP surgeries or at home.

- Laboratory data indicates that the uptake of screening for communicable diseases in pregnancy is high (greater than 95%) for all four communicable diseases.

- Thirteen pregnant women were identified as having HIV by the screening programme, only six of whom were previously known to be HIV positive. Seventy-three women were detected as having hepatitis B virus, 34 of whom were previously known to be chronic carriers of the virus. Fifteen women were identified by the screening programme to be positive for syphilis. Of these six were false positives, three were previously treated and only six required follow-up management. As the majority of the women with HIV or HBV were not previously known to be infected, the detection of these women and the implications for their health and the health of their babies are immense and illustrates the success of the screening programme. All infected women and their babies were offered appropriate treatment and care.

CHAPTER 4: COMMUNICABLE DISEASES IN PREGNANCY

Background

HIV screening in pregnancy was introduced in Scotland in 2003. This is an addition to the existing integrated programme of antenatal screening to limit risk for a number of communicable diseases - hepatitis B, syphilis, rubella as well as HIV.

Aim of screening programme

The primary aim of screening women for these conditions is to ensure a plan for treatment and management for affected individuals and their babies. It allows 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.

Eligible population

The programme is offered universally to all pregnant women at the first booking visit and is opt-out. Women are offered the test, not because they have been at risk, but because they are pregnant.

The screening test

Testing for infection with HIV, hepatitis B, syphilis and immunity to rubella are carried out on serum obtained from a single blood sample normally taken at the first antenatal booking visit. Occasionally a second blood sample may be requested for technical reasons.

Screening pathway

The following protocols for communicable diseases screening in pregnancy were approved by the Pregnancy Screening Group in June 2007 by the Pregnancy Screening for Communicable Diseases in Pregnancy Protocols and Data Monitoring sub group chaired by Dr Gillian Penrice, Consultant in Public Health Medicine in the Public Health Protection Unit. These were updated in 2008.

- Offering routine antenatal communicable diseases test
- Protocol for significant laboratory results for hepatitis B
- Protocol for significant laboratory results for HIV
- Protocol for significant laboratory results for non immune rubella infection
- Protocol for significant laboratory results for syphilis

The protocols set out the pathways for antenatal screening for communicable diseases in order to meet NHS QIS Standard 3a1.

Delivery of screening programme 2008/09 - results

16,079 pregnant women had a first booking visit at a Greater Glasgow and Clyde hospital during 2008/09. 12,428 took place at Greater Glasgow maternity units and 3,651 at Clyde maternity units. This includes all first booking visits at hospital, at a clinic outside of hospital, including community outreach and at GP surgeries or at home.

All women are offered screening for the four communicable diseases, and receive an information leaflet about the screening tests prior to attendance at their first booking visit. However, the number of women booking cannot be used to accurately calculate uptake of the individual screening tests as the laboratory data below includes 'repeat samples', i.e. second samples taken from the same woman. Within Greater Glasgow and Clyde, the total number of samples (12,561) is greater than the total number of booking visits (12,428).

An estimate of the percentage uptake of each of the tests has been calculated by dividing the number requesting the test by the total number of samples. When screening is offered to the woman, the tests are accepted or refused individually. Consent is obtained and documented in the woman's notes.

The **Table 4.1** below of results shows that for three of the screening tests, uptake is greater than 95%.

Table 4.1 Greater Glasgow laboratories

Samples 2008/09					Results					
	Total number of samples	No. requesting individual test	No. not requesting individual test	% uptake	Antibody detected		Antibody not detected		Insuff[1] or not tested	
					No.	%	No.	%	No.	%
HIV	12561	12176	413	96.9	13[2]	0.11	12130	99.6	33	0.3
HBV	12561	12436	153	99.00	71[3]	0.6	12332	99.2	33	0.3
Rubella	12561	12580	8	100.1	11949[4]	95	599	4.8	32	0.3
Syphilis	12561	12206	382	97.2	15	0.1	12174	99. 8	17	0.1

Notes

[1] Insufficient or not tested – although the test was requested, for various reasons, e.g. sample volume too small, the test could not be carried out. A repeat sample will be needed.

[2] 6 of the 13 infections were previously known about

[3] 37 of the 71 infections were previously known about

[4]Detection of antibody means that the woman is immune to rubella. No antibody detected means that the woman is susceptible to rubella and should be offered immunisation with MMR vaccine after delivery.

Table 4.2 Clyde Laboratories

Samples 2008/09[1]					Results							
	Total number of samples	No. requesting individual test	No. not requesting individual test	% uptake	Antibody detected		Antibody not detected		*Equiv*		Insuff[2] or not tested	
					No.	%	No.	%	No.	%	No.	%
HIV	3877	3722	155	96	-	-	3714	99.8	-	-	8	0.2
HBV	3879	3756	123	96.8	2	0.05	3746	99.8	-	-	8	0.2
Rubella	3856	3832	24	99.4	3638[3]	94.9	168	4.4	18[4]	0.5	8	0.2
Syphilis	3877	3759	118	96.7	-	-	3749	99.7	1	0.03	9	0.2

Notes

[1] Incomplete reporting of data from IRH lab from August and September 2008. The incomplete data is a consequence of data transfer for reporting purposes and not indicative of missed cases during the screening process.
[2] Insufficient or not tested – although the test was requested, for various reasons, e.g. sample volume too small, the test could not be carried out. A repeat sample will be needed.
[3] Detection of antibody means that the woman is immune to rubella.
[4]No antibody detected or equivocal means that the woman is susceptible to rubella and should be offered immunisation with MMR vaccine after delivery.

Immunity to rubella

Differences in laboratory testing and reporting of rubella results across the labs had been noted. This had consequences for the proportion of women being offered MMR vaccine after delivery. In 2008, the Pregnancy Screening for Communicable Diseases subgroup worked with the labs to standardise the reporting of results across the Board and to reduce the number of tests reported as equivocal. The percentage of women who are not immune to rubella is now broadly similar across the Board.

Information systems

While the protocols have been integrated across the Greater Glasgow and Clyde health board area, there is not a single information system which facilitates routine reporting.

Antenatal samples are tested at a total of four laboratories across the Greater Glasgow and Clyde area and this brings challenges of data collection and reporting. However, there are excellent communication links with laboratory staff who provide the necessary monitoring data when requested.

The IT application to support all pregnancy and newborn bloodspot screening programmes which will be rolled out in 2009/10 will see improvements in both the reporting and management of cases identified through the programme.

Future developments

The Pregnancy Screening for Communicable Diseases subgroup will continue to audit activity and outcomes against the protocols to ensure that the QIS standards are met and women identified as a result of the programme are offered appropriate treatment and care.

Challenges and future priorities

The Pregnancy Screening for Communicable Diseases subgroup will work with the laboratories to identify and resolve the minor data anomalies and improve routine reporting so that ongoing audit and identification of any problems with protocol compliance are noticed and rectified in a timely manner.

Although after-care of women and their children identified through screening is not strictly a screening function, the management, treatment and care of such individuals should be considered as a consequence of the screening programme. There are well-established follow-up protocols for babies born to mothers infected with hepatitis B and regular audits are carried out to ensure effectiveness. For those mothers and their children affected by HIV, there is an annual HIV clinical audit. The audit reviews those HIV cases detected via the screening programme and examines where the protocol has been particularly successful or requires amendment.

Conclusion

The results indicate that this screening programme is successful as the uptake of the four screening tests is high and all women identified (and their babies) are offered appropriate treatment.

Appendix 4.1

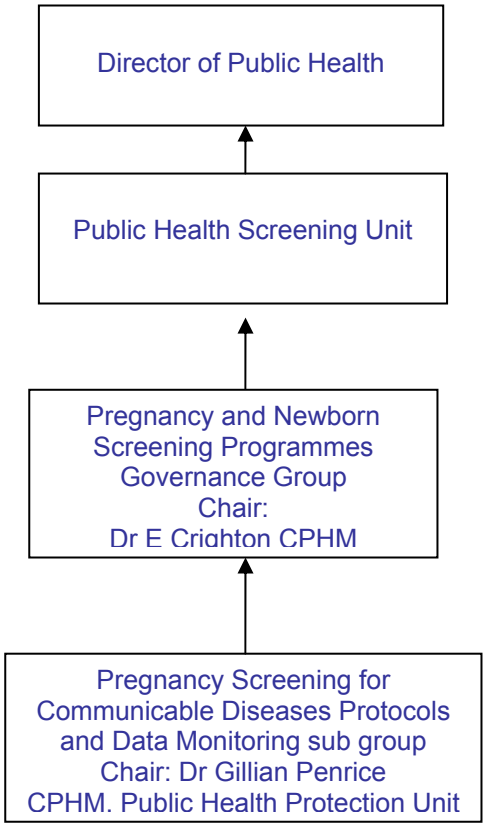
Members of Pregnancy Screening for Communicable Diseases Data and Monitoring Group

(As at March 2009)

Dr Gillian Penrice	Public Health Protection Unit (Chair)
Mrs Donna Athanasopolous	PERL Resources Co-ordinator
Ms Elizabeth Boyd	Clinical Effectiveness Facilitator
Dr Sheila Cameron	Consultant Clinical Scientist
Mrs Louise Carroll	Programme Manager HIV/STIs
Ms Cathy Harkins	Nursing & Midwifery Manager
Ms Flora Dick	Special Needs (SNIPS) Midwife
Ms Catherine Frew	Data Analyst
Mrs Annie Hair	Head of Children's Services
Mrs Annette Little	Information Analyst
Miss Denise Lyden	Project Officer
Mrs Eleanor McColl	IT Service Delivery Manager
Mrs Gwyneth MacDonald	Sexual Health Advisor
Dr Alan Mathers	Clinical Director Obstetrics and Gynaecology
Mrs Marie-Elaine McClair	Clinical Nurse Manager
Mrs Harriet O'Donnell	Health Protection Nurse Specialist
Mrs Diane Paterson	Lead Midwife
Ms Linda Rhodick	Medical Secretary/Data Co-ordinator
Dr James Robins	Consultant Obstetrician & Gynaecologist
Dr Tasmin Sommerfield	Specialist Registrar in Public Health
Dr Andrew Thomson	Consultant Obstetrician & Gynaecologist
Mrs Janice Winter	Clinical Effectiveness Facilitator
Dr Roger Wong	Clinical Coordinator, Brownlee Centre
Mrs Irene Woods	Lead Midwife

Appendix 4.2

Reporting Structure:
Pregnancy Screening for Communicable Diseases Protocols and Data Monitoring Sub Group



Key:

_____ Direct Reports

CHAPTER 5: DOWN'S SYNDROME AND NEURAL TUBE DEFECTS

SUMMARY

- In NHS Greater Glasgow and Clyde screening for Down's syndrome and neural tube defects (NTDs) is offered to all pregnant women at their booking visit.

- In the year 2008/09, 16,079 women attended antenatal clinics across NHS Greater Glasgow and Clyde. 14,232 women were NHS Greater Glasgow and Clyde residents and 1,847 women lived outwith the Board area.

- There were two screening pathways in NHS Greater Glasgow and Clyde: first trimester combined ultrasound and biochemical testing for Down's syndrome and 18-20 week foetal anomaly ultrasonography offered to women booking in the Clyde area of NHS Greater Glasgow and Clyde; and second trimester blood testing offered to women booking in Greater Glasgow.

- In 2008/09, the overall uptake for Down's syndrome and neural tube defects was 63.8%. The overall percentage uptake for Down's syndrome was 62.9%; and first trimester combined ultrasound and biochemical screening for neural tube defect was 15.3%. 0.84% of women chose to have only neural tube defect screening.

- Following the second trimester screening, 6.4% of women were assigned to the 'higher chance' of Down's syndrome group, 0.7% of women assigned to the 'higher chance' of trisomy 18 group and 2.2% of women with an elevated AFP giving a 'higher chance' of a neural tube defect.

- 460 amniocentesis tests were analysed by the Cytogenetics Laboratory. 50 abnormalities were detected (10.9% of samples) and 26 of those (5.7% of total tests) had a diagnosis of trisomy (Down's syndrome/trisomy 18).

- 97 chorionic villus biopsies were analysed by the Cytogenetics Laboratory in 2008/09. 31 abnormalities were detected (32% of tests) and 17 of those (17.53% of tests) had a diagnosis of trisomy (Down's syndrome/trisomy 18).

- To date, it is known that 11 cases of Down's syndrome, 2 cases of trisomy 18 and 4 cases with neural tube defects were detected antenatally by screening. Some babies born with these conditions will not be diagnosed during pregnancy as a number of women that had a "higher chance" screening result would not take up the offer of diagnostic test (amniocentesis or CVS).

- From 2010, all women in NHS Greater Glasgow and Clyde will be offered combined ultrasound and biochemical screening (CUBS) in the first trimester of pregnancy and a second trimester foetal anomaly ultrasound (FAS) scan between 18 weeks, 0 days and 20 weeks, 6 days. Women who do not present early enough in their pregnancy to take advantage of first trimester screening will be offered second trimester serum screening.

CHAPTER 5: DOWN'S SYNDROME AND NEURAL TUBE DEFECTS

Background

Scottish Government's guidance CEL 31 (2008) on Changes to Pregnancy and Newborn Pregnancy programmes set out guidance for Boards to ensure all pregnant women are offered down's syndrome and other congenital amply screening.

a) Down's syndrome

Down's syndrome is a congenital condition which causes moderate to severe learning difficulties, impaired physical growth, characteristic facial appearance and is associated with a number of other physical problems such as cardiac abnormalities.

The Scottish Perinatal and Infant Mortality and Morbidity Report 2006 shows the rate of Down's syndrome in Scotland for 2001 – 2005 was 1.71 per 1000 births (including prenatal diagnosis) with some 61 babies born with the syndrome. Over the same time period, the rates for Down's syndrome for Greater Glasgow were 1.19 per 1000 and 0.86 per 1000 in the former NHS Argyll and Clyde.

b) Neural Tube Defects

Neural tube defects (NTDs) are congenital malformations which arise during the development of the brain and spinal cord. It can result in spina bifida (incomplete closure of the lower spine – this can be open or closed depending on whether or not there is tissue covering the lower spine) which causes walking difficulties as well as problems with bowel and bladder control; or anencephaly when the skull and brain are not properly formed.

Scottish Perinatal and Infant Mortality and Morbidity Report 2006 shows the rate of neural tube defects in Scotland for 2001-2005 was 0.98 per 1000 (including prenatal diagnosis) with some 18 babies born with spina bifida and 3 with anencephaly.

Over the same time period, the rates for neural tube defects for Greater Glasgow was 0.75 per 1000 births and 0.65 per 1000 in the former NHS Argyll and Clyde.

Aim of screening programme

The purpose of antenatal screening for Down's syndrome and neural tube defects is to detect Down's syndrome and neural tube defects 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.

Eligible population

All pregnant women who book for antenatal care in NHS Greater Glasgow and Clyde are offered antenatal screening for Down's syndrome and neural tube defects in the first, second or both trimesters of their pregnancy.

Screening setting

All women are provided with information regarding Down's syndrome and neural tube defects prior to attending the antenatal clinic, allowing them to make an informed decision regarding screening tests.

All pregnant women are offered antenatal screening for Down's syndrome and neural tube defects at the antenatal clinic. Screening is integrated into the clinical care pathway. There are seven hospitals and ten associated community clinics where women can book for their antenatal care.

The screening tests

Screening for Down’s syndrome and neural tube defects can be carried out using a number of different screening methods. The screening tests, together with maternal risk factors, are used to derive an overall risk of having a baby with Down’s syndrome or a neural tube defect.

a) Down's syndrome

There are two different screening tests for Down's syndrome used in NHS Greater Glasgow and Clyde:

- Blood testing in the second trimester (AFP and total beta HCG) and maternal age. It is carried out at 15-20 weeks.

- Combined test: This uses a combination of ultrasound measurements of foetal nuchal translucency (NT); measurements of maternal blood markers: free beta HCG and PAPP-A); age and other maternal factors. It is carried out at 11-14 weeks. This method has the best detection rate and the lowest false positive rate.

b) Neural Tube Defects

There are two different screening methods for neural tube defects used in NHS Greater Glasgow and Clyde:

- Blood testing in the second trimester (AFP and total HCG measured at around 16 weeks) and maternal age.

- 18-20 week foetal anomaly ultrasonography (which also assesses other foetal anomalies).

Throughout NHS Greater Glasgow and Clyde, all women who are found to have a risk of Down's syndrome greater than or equal to 1:250 or a risk of neural tube defect defined by an AFP greater or equal to 2.0 MOM are offered further investigation and management. All women with an abnormal foetal anomaly ultrasound are offered further investigations.

The diagnostic procedures

Further diagnostic investigation for Down's syndrome and neural tube defects in pregnancy include:

- Chorionic villus sampling: This is an invasive procedure, where a needle is used to sample the placenta. It is usually performed between 11 to 13 weeks and has a miscarriage rate of 2%.

- Amniocentesis: This is an invasive procedure, where a needle is used to sample the fluid around the foetus. It is usually performed after 15 weeks gestation and has an overall risk of miscarriage of 1%.

The sample is sent to Glasgow Cytogenetics Laboratory to perform the Quantified Fluorescent Polymerase Chain Reaction (QF-PCR) analysis (Rapid Report) and standard culture/karyotyping.

Quantified Fluorescent Polymerase Chain Reaction is a technique used in testing for Down's syndrome. This is a rapid and robust method that is highly automated. Testing includes the enumeration of chromosome 21 (to exclude Down's syndrome), 18 (Edwards syndrome) and 13 (Patau's syndrome).

Standard Culture/Karyotyping is commonly used to diagnose Down's syndrome, other trisomies, balanced and unbalanced translocations and the sex of the fetus. It involves growing cells and then counting all chromosomes and examining their structure and shape. The main disadvantage is the long wait for results.

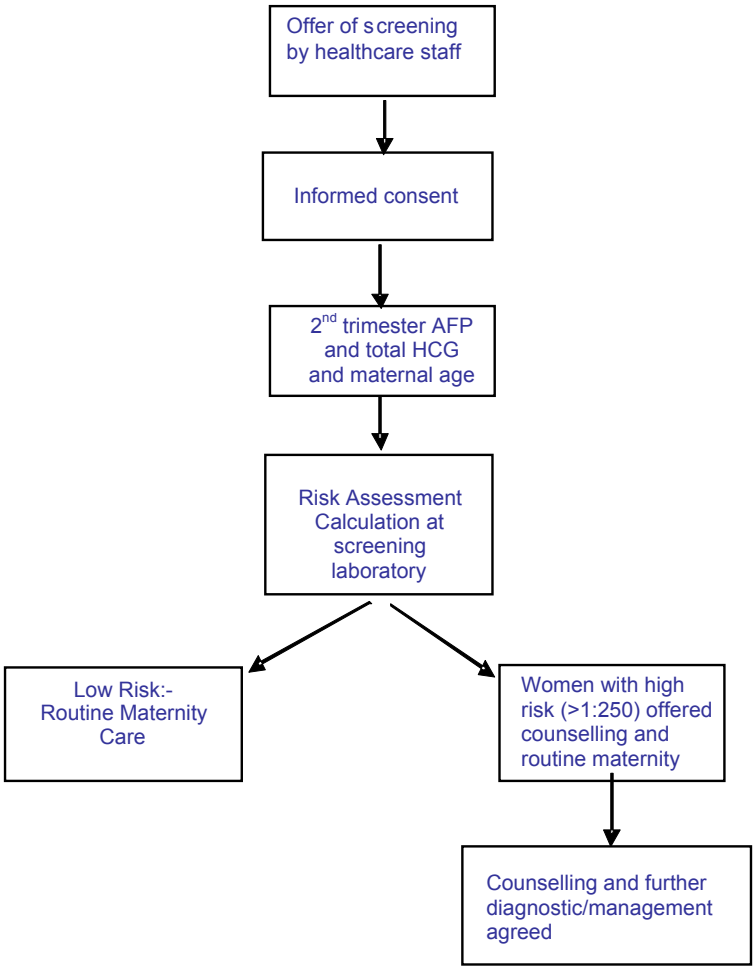
Screening Pathway

Throughout NHS Greater Glasgow and Clyde, there are two main screening pathways.

a) Greater Glasgow (and women in Clyde who book too late in their pregnancy to have first trimester screening) These women are offered second trimester blood testing for Down's syndrome and neural tube defects (double test) (See Figure 5.2)

Figure 5.2

Screening For Down's Syndrome – Greater Glasgow

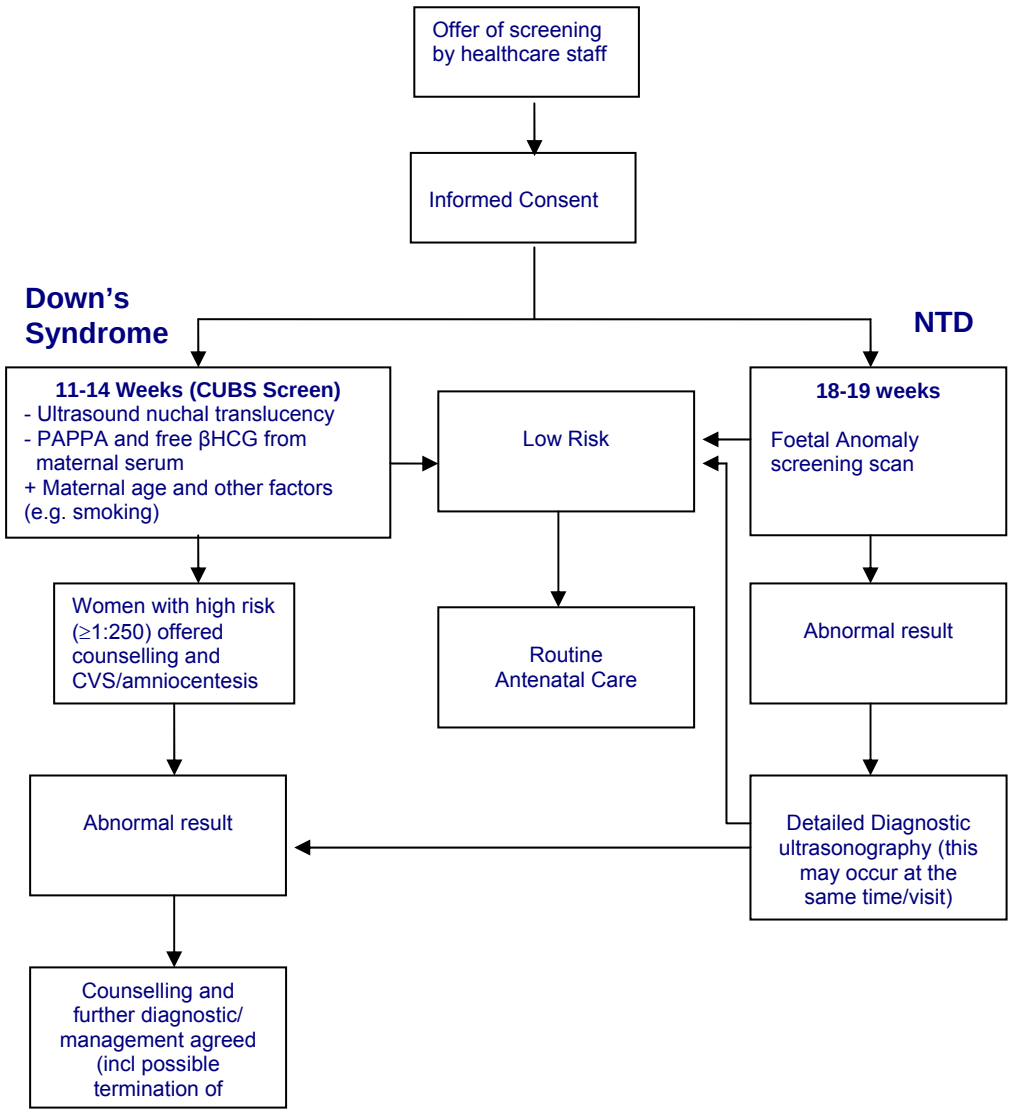


b) Clyde area of NHS Greater Glasgow and Clyde

The Clyde area offers all women combined screening for Down's syndrome at 11 – 14 weeks and universal routine 18-20 week foetal anomaly ultrasonography (see Figure 5.3).

Figure 5.3

Clyde: Screening For Down's Syndrome and Neural Tube Defects



Uptake of Down's syndrome and neural tube defect screening in NHS Greater Glasgow and Clyde

The decision to accept screening for Down's syndrome and neural tube defects raises particular moral and ethical issues for women. Uptake therefore depends on whether women would wish further investigation or management of Down's syndrome or neural tube defects. This is reflected in the uptake rate of testing, although uptake of foetal ultrasonography at any stage is virtually 100%.

At present, assessment of uptake of screening is based on laboratory data only. In the year 2008/09, 16,079 women attended antenatal clinics across NHS Greater Glasgow and Clyde. **Table 5.1** shows that 14,232 women were NHS Greater Glasgow and Clyde residents and 1,847 women lived outwith the Board area.

Table 5.1 Number of women booking antenatal clinics in NHS Greater Glasgow and Clyde from 1 April 2008 to 31 March 2009

Hospital/Clinic name	NHS GGC Resident	Non NHS GGC Resident	Total
Greater Glasgow:			
Clarkston Clinic	51	6	**57**
Easterhouse HC	150	0	**150**
Glasgow Royal Maternity	4622	1128	**5750**
Possilpark HC	38	0	**38**
Queen Mothers	3115	238	**3353**
Kilsyth HC	9	1	**10**
Rutherglen HC	187	12	**199**
Southern General	2450	102	**2552**
Victoria Infirmary	307	8	**315**
Central Health Centre	4	0	**4**
Sub Total	**10933**	**1495**	**12428**
Clyde:			
Inverclyde Royal	1049	106	**1155**
Barrhead HC	160	0	**160**
Dumbarton HC	2	0	**2**
Royal Alexandra	1538	92	**1630**
Vale of Leven	550	154	**704**
Sub Total	**3299**	**352**	**3651**
Total	**14232**	**1847**	**16079**

Source: SMR00

Delivery of Screening Programme 2008/09

Table 5.2 shows that 2,468 samples were received for first trimester combined ultrasound biochemical screening and 7,654 for second trimester Down's syndrome and neural tube defects. 135 women chose to be tested for neural tube defects only.

Table 5.2 Number of samples received and number of women screened in 2008 by Division for type of screening test

Division	1st trimester CUBS		2nd trimester DS/NTD		2nd trimester NTD only (with no previous CUBS)		Overall %	Total number screened [1]	Number Booked
Clyde	2290	62.7%	430	11.8%	13	0.4%	74.9%	2733	3651
Greater Glasgow	178	1.4%	7224	58.1%	122	1.0%	60.5%	7524	12428
Total	**2468**	**15.3%**	**7654**	**47.6%**	**135**	**0.8%**	**63.8%**	**10257**	**16079**

Source: West of Scotland Regional Prenatal Screening Service

Note:

CUBS = combined ultrasound biochemical screening

DS = Down's Syndrome

NTD = neural tube defect

[1] The total number of women screened may be a slight underestimate. It is estimated that 100 to 200 women who have CUB screening privately and then have an NTD only test through the maternity unit. They are not included as they have had a CUB screen.

There are currently different policies for neural tube defects screening in Greater Glasgow and in Clyde. In Clyde, all women are offered an anomaly scan at 18 – 20 weeks whereas in Greater Glasgow, neural tube defects screening is carried out by measuring maternal serum AFP in the second trimester.

In 2008/09, the overall uptake for Down's syndrome and neural tube defects was 63.8%. The overall percentage uptake for Down's syndrome was 62.9%; and first trimester combined ultrasound and biochemical screening for neural tube defect was 15.3%. 0.8% of women chose to have only neural tube defect screening.

Table 5.3 shows the number of women who had a foetal anomaly scan across NHS Greater Glasgow and Clyde. As data is recorded manually, the numbers of women reported to have had a foetal anomaly scan is higher than the numbers of women booking as per SMR00.

It was not possible to calculate the overall uptake of neural tube defects due to the difficulty linking the scans to women.

Table 5.3 Total number of foetal anomaly scans by maternity unit for the period April 2008 to March 2009

Maternity Unit	Total number of women who had a Fetal Anomaly Scan [1]
Rankin Maternity Hospital	1075
Royal Alexandra Hospital	2279
Vale of Leven Hospital	786
Clyde Subtotal	**4140**
Princess Royal Maternity Hospital [2]	1557
Queen Mother's Hospital [2]	1569
Southern General Hospital [2, 3]	850
Greater Glasgow Subtotal	**3976**
NHSGGC Total	**8116**

Source: Manual records held across maternity units

Notes:

1. The number of scans include repeat scans.
2. Detailed scans offered to women with high risk pregnancies
3. Estimated figure due to incomplete records held.

Foetal anomaly scanning is offered to all pregnant women in Clyde as part of a screening programme. From September 2009 all pregnant women booking in Greater Glasgow will be offered a foetal anomaly scan. Prior to that, foetal anomaly scanning was only offered to those women at risk.

Proportion of women assigned to the 'higher chance' groups for Down's syndrome, trisomy 18 and neural tube defects

Table 5.4 shows the number and proportion of women initially assigned to each of the three 'higher chance' groups following the first trimester CUB screening and second trimester screening.

Among those who had first trimester CUB screening, 3.5% of women were assigned to the 'higher chance' of Down's syndrome group and 0.1% to the 'higher chance of trisomy 18 group.

Following the second trimester screening, 6.4% of women were assigned to the 'higher chance' of Down's syndrome group, 0.7% of women assigned to the 'higher chance' of trisomy 18 group and 2.2% of women with an elevated AFP giving a 'higher chance' of a neural tube defect.

NHS Quality Improvement Scotland Standards: Pregnancy and Newborn Screening 2005, recommends that 5-7% screening tests for Down's syndrome should be assessed as high risk and 2-4% tests for neural tube defects. Therefore, laboratory based screening in NHS Greater Glasgow and Clyde does achieve these standards.

Table 5.4 Number and proportion of women initially assigned to the 'higher chance' groups from screening by type of screen

CUB Screening		
	N	%
- Higher Chance' of Down's syndrome	87	3.5
- Higher Chance' of Trisomy 18/13	4	0.1
2nd Trimester Screening		
	N	%
- Higher Chance' of Down's syndrome	489	6.4
- Higher Chance' of Trisomy 18	52	0.7
- NTD risk (AFP≥ 2.0 MOM)	165	2.2

Source: West of Scotland Regional Prenatal Screening Service

In 2008/09, **Table 5.5** shows that 460 amniocentesis tests were analysed by the Cytogenetics Laboratory. Some women whose indication for amniocentesis has been recorded as "age over 35" have also been screened; however, it was not possible to separate the data.

50 abnormalities were detected (10.9% of samples) and 26 of those (5.7% of total tests) had a diagnosis of trisomy (Down's syndrome/trisomy 18).

Table 5.5 Amniocentesis referrals and outcomes 1st April 2008 - 31st March 2009

	Referral Type				
	Biochemical Screening	Maternal Age >35	Abnormalities on Scan	Other	Total
Number of women (= number of tests)	281	103	50	26	460
% total referral reasons	61.1%	22.4%	10.9%	5.7%	
Number with normal results	266	100	35	24	425
Number with diagnostic trisomy	12	2	11	1	26
% number with diagnostic trisomy	4.27%	1.94%	22.00%	3.85%	
Number of other non trisomy abnormalities	3	1	2	1	7
Total number of abnormalities	**15**	**3**	**13**	**2**	**33**
% total number of abnormalities	**5.34%**	**2.91%**	**26.00%**	**7.69%**	**7.17%**

source: Cytogenetics Laboratory

Table 5.6 shows that 97 chorionic villus biopsies were analysed by the Cytogenetics Laboratory in 2008/09. 31 abnormalities were detected (32% of tests) and 17 of those (17.53% of tests) had a diagnosis of trisomy (Down's syndrome/Trisomy 18).

Table 5.5 Chorionic Villus Biopsy referrals and outcomes 1st April 2008 - 31st March 2009

	Referral Type				
	Biochemical Screening	Maternal Age >35	Abnormalities on Scan	Other	Total
Number of women (= number of tests)	10	16	31	40	97
% total referral reasons	10.3%	16.5%	32.0%	41.2%	
Number with normal results	6	15	17	32	70
Number with diagnostic trisomy	4	1	11	1	17
% total with diagnostic trisomy	40.00%	6.25%	35.48%	2.50%	17.53%
Number of other non trisomy abnormalities	0	0	3	7	10
Total number of abnormalities	**4**	**1**	**14**	**8**	**27**
% total number of abnormalities	**40.00%**	**6.25%**	**45.16%**	**20.00%**	**27.84%**

source: Cytogenetics Laboratory

Table 5.7 shows the number of cases of Down's syndrome and neural tube defects detected by screening in 2008/09.

Table 5.7 Number of abnormalities detected by screening*

Screening Test	Condition	Number
Second trimester double marker	Down's Syndrome	9
	Trisomy 18	1
Second Trimester APF	NTD	4
	Gastrochisis	1
First Trimester CUB Screening	Down's Syndrome	2
	Trisomy 18	1
	Trisomy 13	1

Source: West of Scotland Regional Prenatal Screening Service

***Note:** The data is incomplete due to timescale (babies to women screened during this time are only just finished being born).

Turnaround time for laboratory results

The turnaround time from a sample to be received in the laboratory to when a report is available is regularly monitored. The time from sample collection until a report is available is also monitored. For 2008/09, the average time taken from sample receipt until a report to be available was 1.2 working days. In 99% of cases a report was available by 3 working days. Results which require follow-up testing are communicated to the requesting centre by fax or phone as soon as possible after the report has been checked and signed by a clinical scientist. Hard copies of all reports are sent out either by mail or by inter-hospital delivery service.

Challenges and future priorities

Women booking in NHS Greater Glasgow and Clyde are offered different screening tests for Down's syndrome and neural tube defects. From Spring 2010, all women will be offered screening tests for Down's syndrome and neural tube defects.

Current information systems do not allow the delivery of failsafe purposes across pregnancy screening programmes. An information management system is being developed to allow the delivery of the failsafe processes for all women working in NHS Greater Glasgow and Clyde.

CHAPTER 6: NEWBORN BLOODSPOT SCREENING

SUMMARY

- The newborn bloodspot screening programme offers tests to detect certain congenital abnormalities which can cause problems in growth and development and for which there is effective management or treatment. The conditions screened for are phenylketonuria, congenital hypothyroidism and cystic fibrosis.

- Newborn Screening for phenylketonuria and congenital hypothyroidism has been in progress since 1965 and 1979 respectively. Newborn screening for cystic fibrosis was added in Scotland in February 2003.

- In 2008/09 of the 15,509 bloodspot samples received, 85 (0.5%) bloodspot specimens could not be analysed due to insufficient amounts of blood on the bloodspot card. This required repeat bloodspot screening tests to be carried out on babies. 61 (0.4%) samples received had taken more than 7 days to arrive at the laboratory.

- In 2008/09, 14,231 babies of NHS Greater Glasgow and Clyde residents were screened which represents 97.7% of the total eligible population of 14,563.

- There were 3 positive cases of phenylketonuria detected (a decrease of 5 from previous year); 11 babies with congenital hypothyroidism and 13 babies with cystic fibrosis. All received appropriate management within the timescale of the standard.

- The proportion of bloodspot cards with a CHI number sent for analysis increased from 66% in April 2008 to 88% in March 2009 compared to the national average of 43% in March 2008 and 63% in April 2009.

CHAPTER 6: NEWBORN BLOODSPOT SCREENING

Background

Newborn bloodspot screening is offered for consent to parents/guardians of all live infants resident in Greater Glasgow, Clyde and Argyll and Bute.

Newborn Screening for phenylketonuria and congenital hypothyroidism has been in progress since 1965 and 1979 respectively. Newborn screening for cystic fibrosis was added in Scotland in February 2003.

Aim of screening programme

The aim of the screening programme is to identify, as early as possible, abnormalities of body chemistry 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 which is found in around 1 in 8,000 babies born; congenital hypothyroidism which affects approximately 1 in 3,500; and cystic fibrosis, an inherited condition affecting 1 in 2,500 babies born in Scotland.

Benefits of programme

The benefits of the programme are that serious conditions may be detected before symptoms appear and treatment is offered at an early stage when it is likely to be more effective. For example, babies born with phenylketonuria cannot metabolise an amino acid called phenylalanine which is a component of protein found in every day foods including milk. Toxic levels of phenylalanine may build up causing irreversible brain damage unless the baby is urgently started on a special diet. With prompt treatment the baby is very likely to develop normally.

Recommended age to perform screen

The bloodspot sample should be taken on day 5 of life whenever possible. There are separate protocols in place for screening babies who are ill, transfused or born prematurely and when repeat testing is required.

The screening test

Blood is taken by the community midwife from the baby's heel using a blood letting device and collected on a bloodspot card consisting of special filter paper. It is then sent to the National Newborn Screening Laboratory in Glasgow for analysis. The blood is analysed for markers of the 3 conditions phenylketonuria, congenital hypothyroidism and cystic fibrosis.

Screening pathway

The screening process requires excellent communication and co-ordination between the hospital and community midwifery service, the National Laboratory at Yorkhill, the Screening Department at Templeton and the paediatric service as is demonstrated in the following pathway **(Figure 6.1)** for phenylketonuria and congenital hypothyroidism. There is a separate cystic fibrosis pathway. **(Figure 6.2**) as double testing is required.

Eligible population

All newborn babies of residents in NHS Greater Glasgow and Clyde.

Figure 6.1 Newborn Screening Process – Phenylketonuria (PKU) & Congenital Hypothyroidism (CHT)

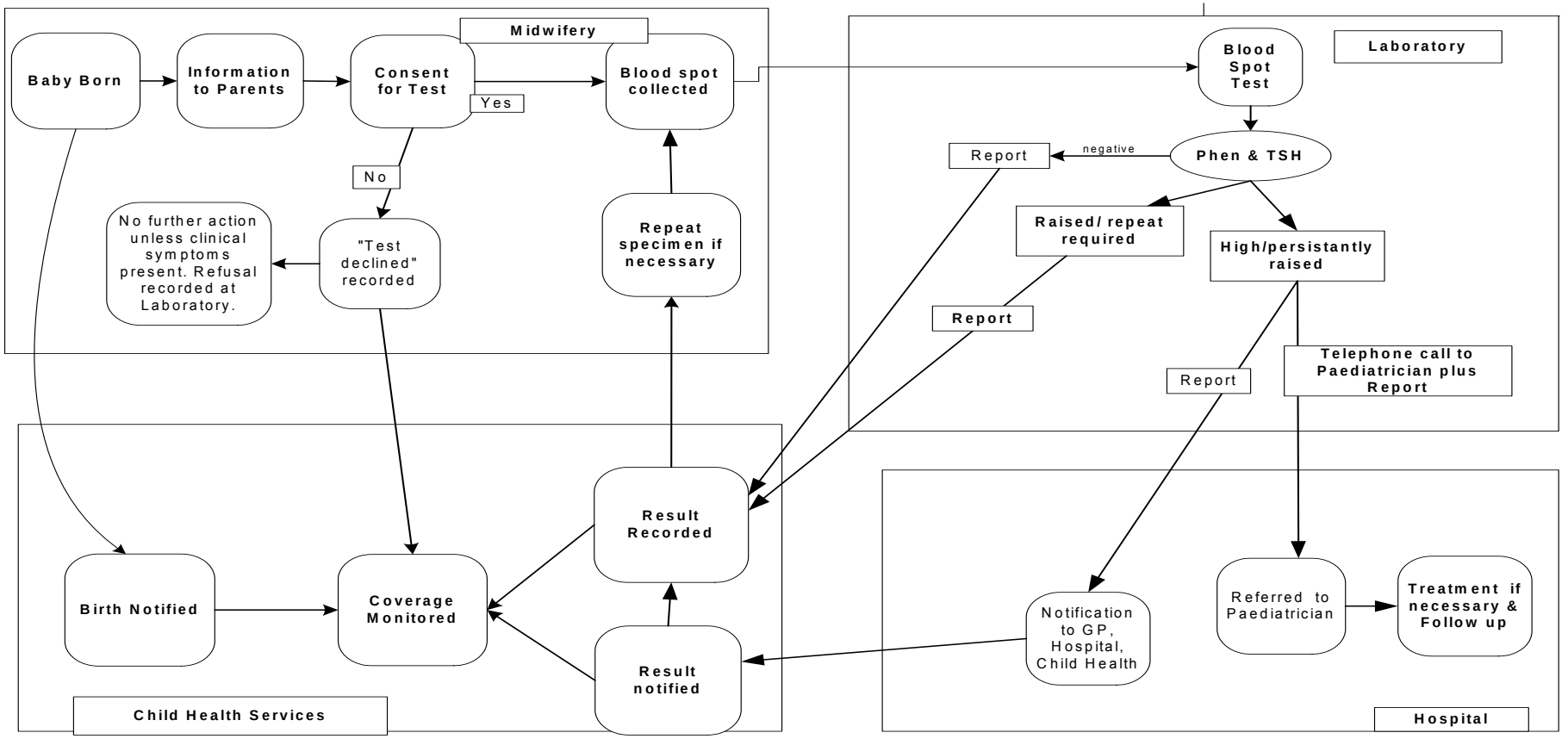
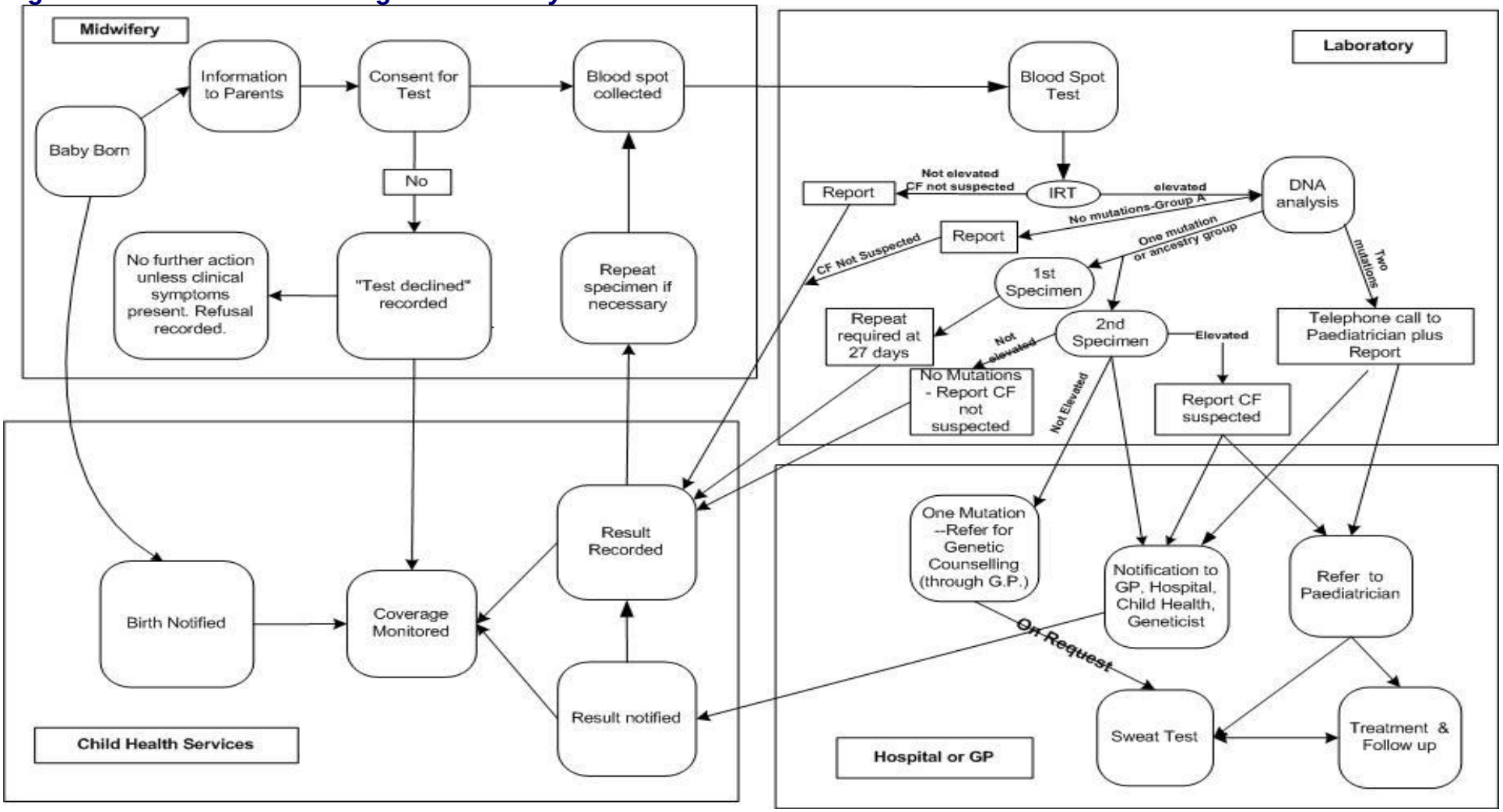


Figure 6.2 Newborn Screening Process: Cystic Fibrosis

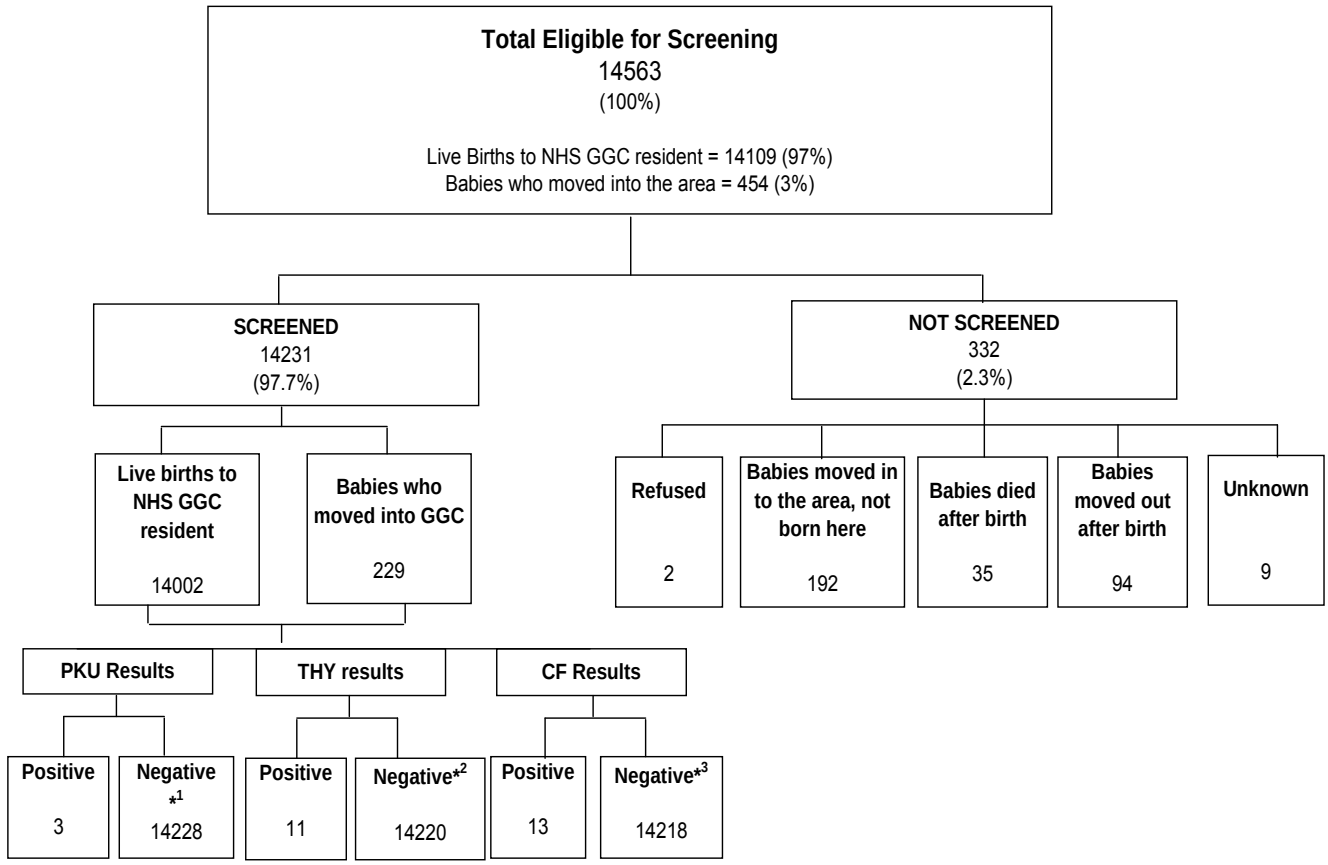


Delivery of screening programme 2008/09

Uptake of newborn bloodspot screening in NHS Greater Glasgow and Clyde

The number of babies of NHS Greater Glasgow and Clyde residents screened in 2008/09 was 14,231, 97.7% of the total eligible population of 14,563 (see **Figure 6.3**.)

Figure 6.3 Summary of Bloodspot Screening Uptake & Results for babies born 1 April 2008 to 31 March 2009 in NHS Greater Glasgow and Clyde



Source: SIRS

*1 Total includes 22 verifications; 1 refusal

*2 total includes 18 verifications; 1 result not in Child Health System.

*3 Total includes 6 carriers; 5 late tests; 28 verifications.

PKU = phenylketonuria

CHT = congenital hypothyroidism

Figure 6.3 illustrates uptake rates and the results of the screening programme from 1 April 2008 to 31 March 2009.

Of the 332 (2.3%) not screened, only two refused screening, 192 moved in or out of the area and 35 babies died. There were three positive cases of phenylketonuria detected (a decrease of five from previous year); 11 babies with congenital hypothyroidism and 13 babies with cystic fibrosis. All received appropriate management within the timescale of the standard.

Table 6.1 shows the percentage uptake of bloodspot screening by CH(C)P area and by deprivation category. The total percentage uptake for babies born to residents in the most deprived areas was 97.4% and 98.3% in the least deprived areas.

Table 6.1 Percentage uptake of Bloodspot Screening by CH(C)P and SIMD

Period: 1st April 2008 to 31st March 2009

	Most Deprived		SIMD		Least Deprived	
CH(C)P	**1**	**2**	**3**	**4**	**5**	**Total**
	%	**%**	**%**	**%**	**%**	**%**
East Glasgow	96.9	97.3	96.2	97.6	100.0	**97.0**
East Dunbartonshire	97.5	99.4	97.7	98.0	97.9	**98.1**
East Renfrewshire	100.0	100.0	97.2	100.0	98.4	**98.7**
Inverclyde	98.7	99.2	100.0	97.8	100.0	**98.8**
North Lanarkshire (GGC residents only)	97.4	90.9	97.4	99.1	100.0	**97.6**
North Glasgow	97.2	97.7	98.5	95.2	96.8	**97.1**
Renfrewshire	99.0	99.4	98.7	98.6	98.8	**98.9**
South East Glasgow	96.1	96.3	100.0	97.9	98.8	**97.1**
South Lanarkshire (GGC residents only)	97.3	98.0	100.0	97.8	96.7	**97.8**
South West Glasgow	97.8	97.6	97.7	97.4	100.0	**97.9**
West Dunbartonshire	97.4	98.9	99.4	100.0	97.4	**98.4**
West Glasgow	96.3	98.1	94.1	92.2	97.3	**96.1**
Grand Total	**97.4**	**98.0**	**98.0**	**97.6**	**98.3**	**97.7**

Source: Child Health; Extracted 23 April 2009
SIMD=Scottish Index of Multiple Deprivation 2006

Table 6.2 shows that, in 2008/09 of the 15,509 bloodspot samples received, 85 (0.5%) bloodspot specimens could not be analysed due to insufficient amounts of blood on the bloodspot card. This required repeat bloodspot screening tests to be carried out on babies. 61 (0.4%) samples received had taken more than seven days to arrive at the laboratory.

National standards require that 95% of positive cases of congenital hypothyroidism and phenylketonuria are to start treatment by 14 days of age and of cystic fibrosis by 35 days of age. Therefore, the time from when a test is taken to the time of arrival at the laboratory is important.

Table 6.2 Specimen test outcomes for Greater Glasgow and Argyll and Clyde for period 1st April 2008 and 31st March 2009

Health Board	Argyll & Clyde	Glasgow	Total
Refused	1	1	2
Partial Refusal (CF)	0	0	0
Insufficient	21	64	85
Unsatisfactory	2	7	9
Expired cards	4	19	23
Updated info	71	110	181
IRT Tested late (total)	14	25	39
IRT tested late (born in Scotland)	1	7	8
>7 days to reach the lab	21	40	61
Ref PKU	0	3	3
Ref TSH	5	9	14
Ref CF	4	5	9
Ref Carrier (CF)	1	8	9
TOTAL TESTS	**4549**	**10960**	**15509**
Insufficient as % of total	0.5	0.6	0.5
Unsatisfactory as % of total	0.04	0.06	0.06
Expired cards as % of total	0.09	0.17	0.15
IRT tested late (born in Scotland) as % of total	0.02	0.06	0.05
>7 days to reach lab as % of total	0.5	0.4	0.4

Source: National Newborn Screening Laboratory

Notes

Refused = parents refused all tests

Insufficient = insufficient blood to perform all tests

Unsatisfactory = specimen damaged or of poor quality

Updated information = cards that were received with incorrect or missing details. Results are not issued until the relevant information is received

IRT Tested Late = baby was more than 6 weeks of age when specimen was taken. The test for Cystic Fibrosis is not reliable after 6 weeks

>7days to reach the lab = more that 7 days from specimen collection to receipt at the laboratory

Ref PKU = babies with high or persistently raised levels of phenylalanine that were referred to paediatricians for further investigations. Some of these may not be confirmed as cases of PKU

Ref TSH = babies with high or persistently raised levels of TSH that were referred to paediatricians for further investigations. Some of these may not be confirmed as cases of Congenital Hypothyroidism

Ref CF = babies suspected of having Cystic Fibrosis or babies referred for Sweat testing. Some of these cases may not be confirmed as cases of CF

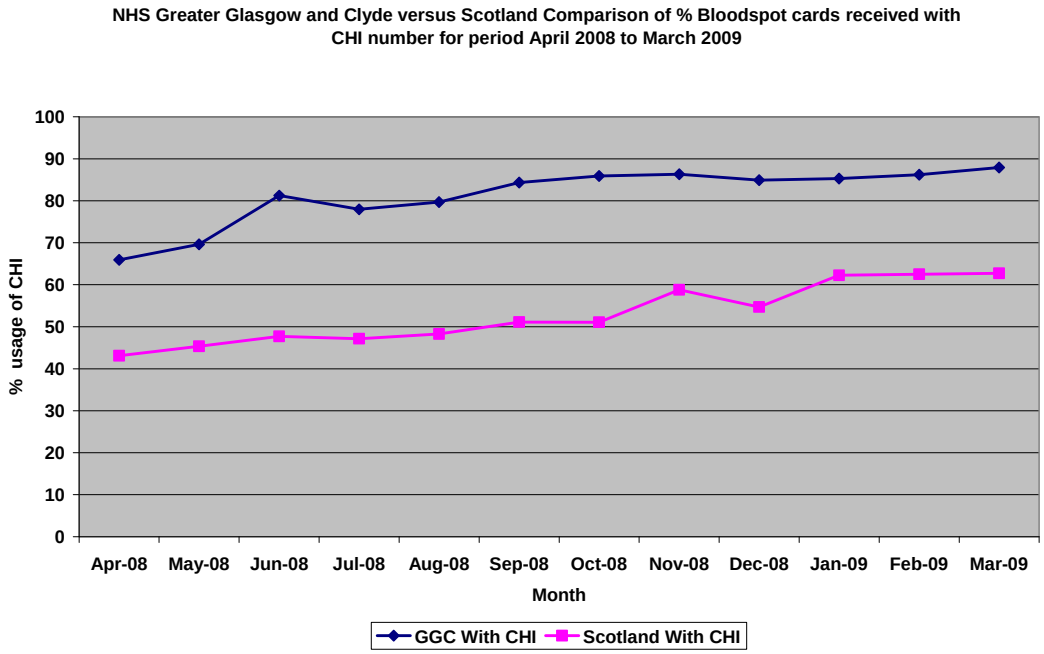
Ref Carrier CF = babies referred as probable carriers of Cystic Fibrosis

Total Tests = Total number of specimens received

In 2008/09, there was a continued increase in the use of the patient identifier number (called the Community Health Index (CHI)) on bloodspot cards

Figure 6.4 compares the number of bloodspot cards with a CHI number received by Greater Glasgow and Argyll and Clyde with the rest of Scotland. It shows that Greater Glasgow and Argyll and Clyde's CHI compliance was above the national average consistently from April 2008 until March 2009. The number on bloodspot cards with a CHI sent for analysis increased from 66% in April 2008 to 88% in March 2009 compared to the national average of 43% in 2008 and 63% in 2009.

Figure 6.4 Percentage of bloodspot screening sample cards received with and without a Community Health Index number



Source: National Newborn Screening Laboratory

Information systems

Information on Pregnancy and Newborn Bloodspot screening tests is provided by the National Laboratory's Information Management System and data is reported on the old former NHS Greater Glasgow and NHS Argyll and Clyde basis.

The results of the Bloodspot test are recorded against the individual child's record held within the Scottish Immunisation and Recall System (SIRS).

Challenges and future priorities

The newborn bloodspot screening programme will see the addition of the haemoglobinopathy and MCCAD screening (see Chapter 8) that will require the development of information materials for parents and training for staff as well as changes to the request cards.

By March 2009, 88% of the bloodspot screening request cards had the Community Health Index recorded. This was a significant increase compared to the previous year's 65%. Work will continue to support the units to achieve a target of 97% CHI compliance.

Appendix 6.1

Members of Newborn Bloodspot Screening Steering Group As at March 2009

Dr Emilia Crighton	Consultant in Public Health Medicine (chair)
Mrs Betty Adair	Clinical Lead Midwife
Mrs Donna Athanasopolous	PERL Resources Co-ordinator
Ms Elizabeth Callander	Lead Midwife
Dr Anne Devenny	Consultant Paediatrician
Mrs Dorothy Finlay	Consultant Midwife
Mrs Fiona Gilchrist	Assistant Programme Manager, Screening Dept
Mrs Annie Hair	CHP Children's Services Lead
Mrs Annette Little	Information Analyst
Miss Denise Lyden	Project Officer
Mrs Joan MacKenzie	Laboratory Newborn Screening Co-ordinator
Ms Katie McEwan	Clinical Service Manager, Neonatology
Ms Marie-Elaine McClair	Lead Midwife PRM (to September 2008)
Mrs Eleanor McColl	Screening Service Delivery Manager
Mrs Julie Mullin	Assistant Programme Manager, Screening Dept
Mrs Diane Paterson	Lead Midwife
Dr Andrew Powls	Consultant Neonatologist
Ms Sara Reynolds	HI&T Project Manager
Ms Liz Terrace	Lead Midwife
Mrs Janice Winter	Clinical Effectiveness Manager
Ms Irene Woods	Lead Midwife

CHAPTER 7: UNIVERSAL NEWBORN HEARING SCREENING

SUMMARY

- The Universal Newborn Hearing Screening (UNHS) Programme was introduced across NHS Greater Glasgow and Clyde in 2005.

- 14,134 babies born in 2008/09 to residents of NHS Greater Glasgow and Clyde. 5,981 (42%) of babies were born to residents in the most deprived areas.

- Of the 14,134 babies born in 2008/09, 13,620 were screened for a hearing loss giving an overall uptake of 96.4%. 204 (1.5%) babies were referred to audiology and, of those, 25 were confirmed with a hearing loss. 3.2% (452) did not attend for screening and these include babies who are deceased or have moved away from their current home address or transferred to another Board area.

- NHS Greater Glasgow and Clyde has established a Universal Newborn Hearing Screening Network to enable staff to share knowledge and experiences.

- An interface between the eSP, the Community Health Index (CHI) and Child Health information systems across Scotland has been developed and the link went live on 2 November 2009. The link removes the need for manual entry of data into eSP which would provide more screening time, tracking of all babies and more importantly a failsafe for notification of births ensuring no babies are missed.

- A local IT project to allow Clyde screeners to transfer screening data electronically into eSP is being piloted by Health visitors in Greenock. It is planned that the pilot will run until Spring 2010 followed by an evaluation. If successful, the project will be implemented across all Clyde sites.

CHAPTER 7: UNIVERSAL NEWBORN HEARING SCREENING

Background

The Universal Newborn Hearing Screening (UNHS) Programme was introduced across NHS Greater Glasgow and Clyde in 2005.

The screening tests are carried out in maternity units for Greater Glasgow residents and in the community for Clyde and Argyll and Bute residents of NHS Highland.

One to two babies in every 1,000 are born with a hearing loss in one or both ears. It is not easy to identify that a young baby has a hearing loss. The objective hearing screening test allows those babies who do have a profound hearing loss to be identified early. Early identification is known to be important for the development of the child. It also means that support and information can be provided to parents at an early stage.

Aim of screening programme

The aim of the screening programme is the early detection of permanent congenital hearing impairment, greater than 40 decibels in the better ear. In addition, babies with mild and unilateral losses are also being identified and receive ongoing review.

The screening test

There are two types of equipment used to screen babies' hearing in the Greater Glasgow and Clyde area. Automated Auditory Brainstem Response (AABR) is used in the hospital setting and Otoacoustic Emissions (OAE) are used in the community setting. In the hospital setting an AABR is used for both the first and second screening stages. In the community model OAEs are used for the first screening stage and both OAE and AABR are used for the second stage of screening.

Screening setting

There are two strands to the Greater Glasgow and Clyde screening protocol. In Greater Glasgow, the majority of screening takes place in the maternity unit at the mother's bedside. In the Clyde, most of the screening takes place in the baby's home. There are outpatient clinics at each of the 3 maternity units and also in Paisley, Lomond and Inverclyde which cover any baby who requires a second screen, 6 hour discharges, home births, and transfers into the area.

Benefits of programme

Evidence suggests that early identification and treatment of babies with hearing loss is beneficial and the programme is being continuously evaluated to confirm this. Prior to the introduction of the NHS Greater Glasgow and Clyde Universal Newborn Hearing Screening programme, bilateral hearing impairment was identified on average at 17 months. Since the programme's introduction, the age of identification has been lowered to less than three months allowing appropriate intervention to take place before the critical age of six months.

Screening pathway

In Greater Glasgow, the hearing screen is carried out by dedicated hearing screeners, based in the maternity units, when the baby is one to two days of age. If babies do not obtain clear responses in both ears at this stage they are re-screened either whilst still in the maternity unit or at an outpatient clinic. If no clear responses are obtained again then at this stage babies are referred on to the audiology department at the Royal Hospital for Sick Children (RHSC) for diagnostic testing.

In Clyde, the hearing screen is carried out by health visitors in the baby's home within six to 12 days of birth. If babies do not obtain clear responses in both ears at this stage they are referred to the UNHS hub in Royal Alexandra Hospital for further testing. If no clear responses are obtained again at this stage then babies are referred on to their local Audiology department for further testing.

There is also a pathway for risk factor identification and ongoing surveillance for the Special Care baby Units and Neonatal Intensive Care Units and this is incorporated into the clinical staff training programme.

Delivery of the screening programme 2008/09

Eligible population

The screening programme covers all babies born to Greater Glasgow and Clyde residents and any babies moving into the area who are aged less than six months. Babies who are resident from other NHS Board areas but are born in NHS Greater Glasgow and Clyde are also screened by NHSGGC screeners.

Table 7 shows that there were 14,134 babies born in 2008/09 to residents of NHS Greater Glasgow and Clyde. 5,981 (42%) of babies were born to residents in the most deprived areas.

A breakdown of the number of babies born split by CHCP area and by deprivation category is shown in Table 7.

Table 7 Total number and percentage of live babies born to NHS Greater Glasgow and Clyde residents split by CHCP area and by deprivation category from 1 April 2009 to 31 March 2009 2008/09

CH(C)P	SIMD Most deprived 1	2	3	4	Least Deprived 5	Total	Total%
East Glasgow	1074	179	108	78	32	**1471**	**10.4**
East Dunbartonshire	76	164	114	150	474	**978**	**6.9**
East Renfrewshire	83	76	96	86	481	**822**	**5.8**
Inverclyde	393	120	70	166	78	**827**	**5.9**
North Lanarkshire[2]	32	26	69	108	30	**265**	**1.9**
North Glasgow	925	74	65	112	93	**1269**	**9.0**
Renfrewshire	635	322	362	282	320	**1921**	**13.6**
South East Glasgow	523	439	191	236	78	**1467**	**10.4**
South Lanarkshire[2]	248	134	94	158	88	**722**	**5.1**
South West Glasgow	844	314	158	74	82	**1472**	**10.4**
West Dunbartonshire	414	344	161	92	32	**1043**	**7.4**
West Glasgow	734	258	200	141	213	**1546**	**10.9**
Grand Total	**5981**	**2450**	**1688**	**1683**	**2001**	**14134**	
% of Grand Total	**42**	**17**	**12**	**12**	**14**		

Source: ESP
NOTE:

1. 331 patients included in total - unable to define CH(C)P or SIMD due to incomplete or incorrect postcode given
2. Only residents of NHS Greater Glasgow and Clyde

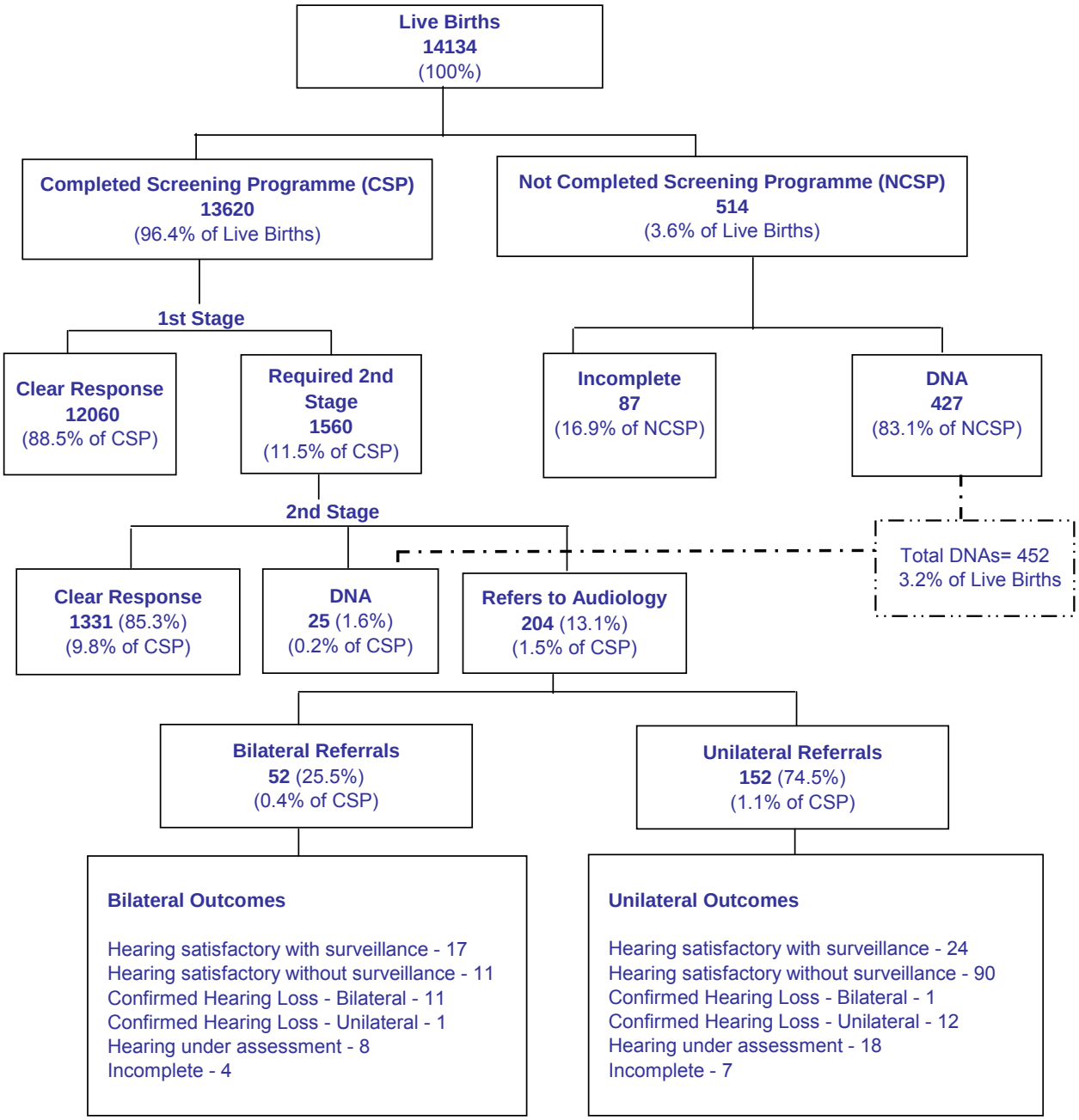
Uptake of the screening programme

Of the 14,134 babies born in 2008/09, 13,620 were screened for a hearing loss giving an overall uptake of 96.4%. 204 (1.5%) babies were referred to audiology and, of those, 25 were confirmed with a hearing loss. 3.2% (452) did not attend for screening and these include babies who are deceased or have moved away from their current home address or transferred to another Board area (**Figure 7.1**).

Figure 7.2 illustrates the activity for the service in Greater Glasgow and **Figure 7.3** illustrates the activity for the service delivered in Clyde.

Figure 7.1

Summary of Uptake and results of 1 April 2008 - 31 March 2009: Greater Glasgow & Clyde



Definitions

1st Stage - is first AABR for Glasgow and the first OAE for Clyde

2nd Stage - is the second AABR for Glasgow and the second OAE and first AABR for Clyde

Results Pending - Includes all those babies who we are still trying to complete the screen

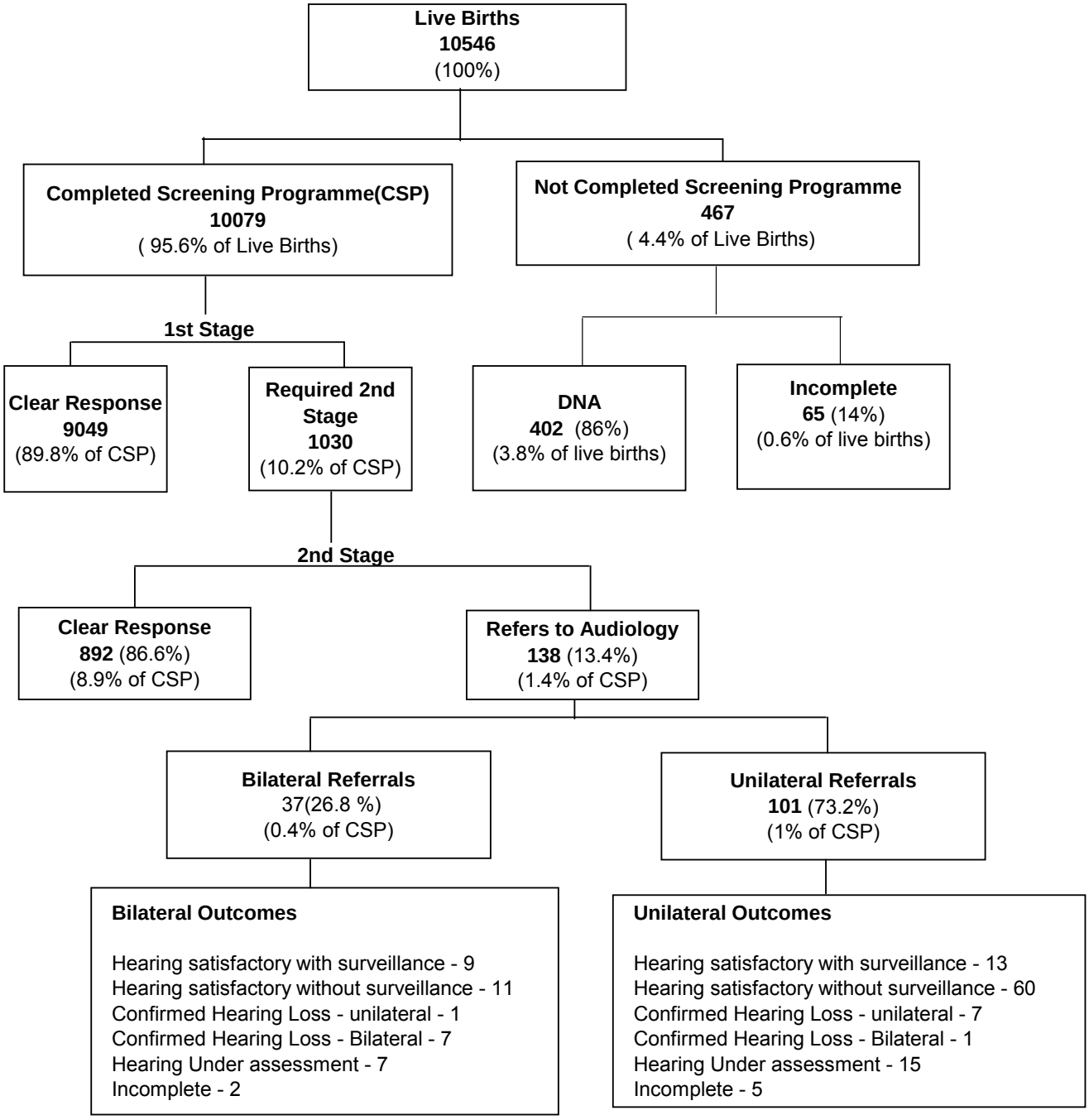
Incomplete/Not Completed - all all those babies we cannot complete a screen for ie DNA's, deceased, transferred out or moved away etc

Clear Response - is a pass, though some have follow up but majority don't

Outcomes - as agreed with undefined being better wording for the possible hearing loss and incompletes including DNA, deceased and pendings etc.

Figure 7.2

Summary of Uptake and results of 1 April 2008 - 31 March 2009: Greater Glasgow



Definitions

1st Stage - is first AABR for Glasgow and the first OAE for Clyde

2nd Stage - is the second AABR for Glasgow and the second OAE and first AABR for Clyde

Results Pending - Includes all those babies who we are still trying to complete the screen

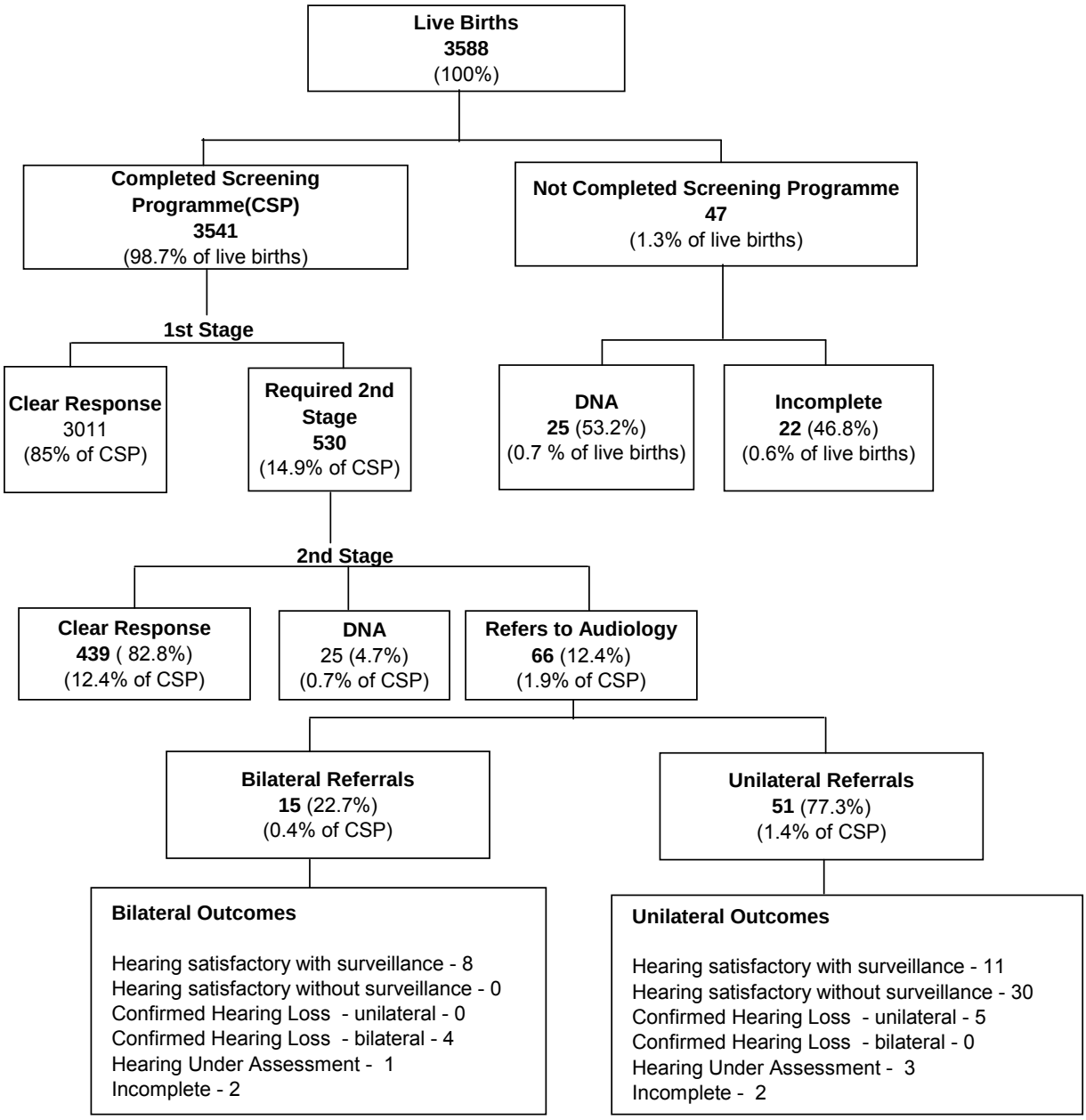
Incomplete/Not Completed - all all those babies we cannot complete a screen or diagnostic assessment for ie DNA's, deceased, transferred out or moved away etc

Clear Response - is a pass (though some have followed up due to risk factors)

Hearing under assessment - all babies who have referred from the screen and their diagnostic assessment is ongoing

Figure 7.3

Summary of Uptake and results of 1 April 2008 - 31 March 2009: Clyde



Definitions

1st Stage - is first AABR for Glasgow and the first OAE for Clyde

2nd Stage - is the second AABR for Glasgow and the second OAE and first AABR for Clyde

Results Pending - Includes all those babies who we are still trying to complete the screen

Incomplete - all all those babies we cannot complete a screen for ie DNA's, deceased, transferred out or moved away etc

Clear Response - is a pass, though some have follow up but majority don't

Outcomes - as agreed with undefined being better wording for the possible hearing loss and incompletes including DNA,deceased and pendings etc.

Performance against NHS QIS Standards

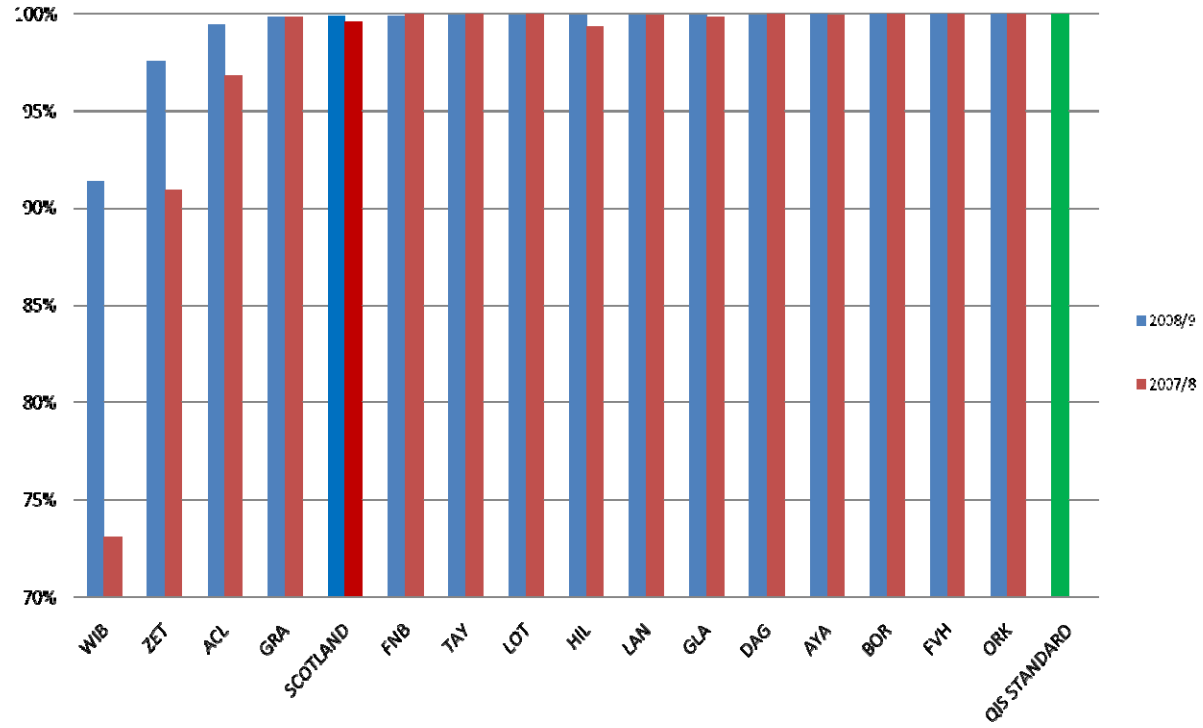
The draft *Annual Report on the Universal Newborn Hearing Screening Report 2008 – 2009* reported on the performance against NHS Quality Improvement Scotland Clinical Standards for Newborn Hearing Screening across all Scotland.

The report data is based on the former NHS Greater Glasgow and NHS Argyll and Clyde Health Board codes denoted as "GLA" and "ACL". "GLA" only Greater Glasgow residents where as "ACL" include residents from Clyde and Argyll and Bute areas, the latter belonging NHS Highland.

All babies are to be offered a hearing screening within the first four weeks of life, unless born prematurely or ill, and complete the process by ten weeks of age. (*NHS Quality Improvement Scotland Clinical Standards for Pregnancy and Newborn Screening: Standard 5 – Newborn Hearing Screening (p46))*

Figure 7.4 shows the percentage of babies recorded on eSP that were offered screening. It shows that Argyll and Clyde is slightly below the national standard.

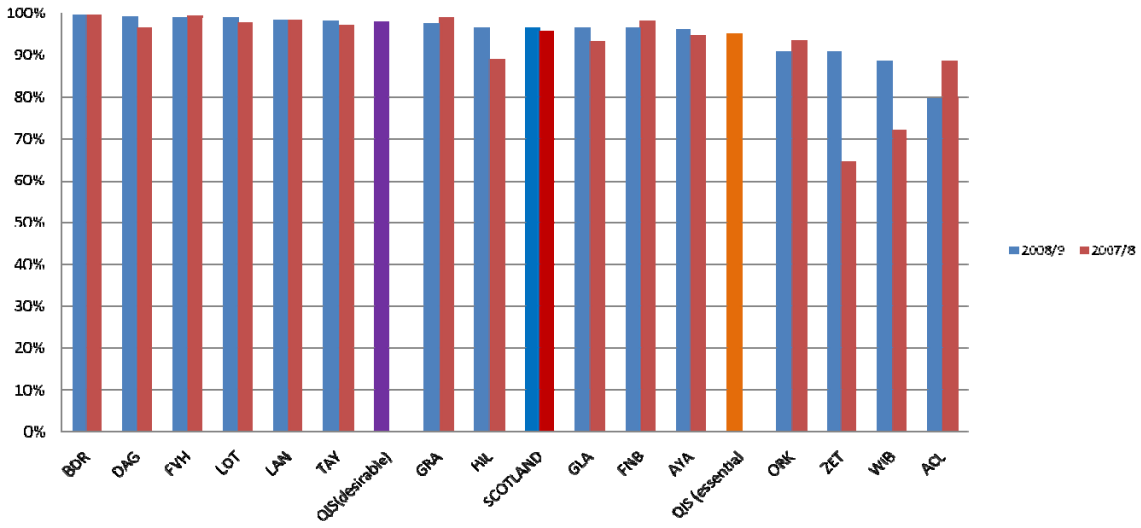
Figure 7.4 Outcome set (screening offered) as a percentage of all records on eSP from 2007/08 to 2008/09



Source: Universal Newborn Hearing Screening in Scotland Annual Report 2008 – 2009: Summary of Service Performance Statistics (September 2009)

Figure 7.5 shows that the percentage of babies that completed the hearing screening programme by ten weeks. At the time of the report being written, Argyll and Clyde had met the standard of 97% but as the data had not been entered on eSP the outcome was shown as approximately 80%. The service in Greater Glasgow has met the standard.

Figure 7.5 Screen outcome set by 10 weeks corrected age as a percentage of records on eSP (well babies and NICU)



Source: Universal Newborn Hearing Screening in Scotland Annual Report 2008 – 2009: Summary of Service Performance Statistics (September 2009)

Universal Newborn Hearing Screening Network

Following a recommendation of the *Audit of Paediatric Audiology and Associate Universal Neonatal Hearing Screening, Medical, Early Intervention and Family Support Services (2007)*, NHS Greater Glasgow and Clyde has established a Universal Newborn Hearing Screening Network to enable staff to share knowledge and experiences.

Information systems

The hearing screening programme has a national IT system – eScreener Plus (eSP) Northgate Newborn Hearing Screening which is a web based database into which all screening results and demographic data are entered. The Child Health Surveillance Programme system is also an important feature of the screening programme and is used as a failsafe to ensure all babies are offered hearing screening.

An interface between the eSP, the Community Health Index (CHI) and Child Health information systems across Scotland has been developed and the link went live on 2 November 2009. The link reduces the need for manual entry of data into eSP which would provide more screening time, tracking of all babies and more important a failsafe for notification of births ensuring no babies are missed.

A local IT project to allow Clyde screeners to transfer screening data electronically into eSP is being piloted by Health visitors in Greenock. It is planned that the pilot will run until Spring 2010 followed by an evaluation. If successful, the project will be implemented across all Clyde sites.

Challenges and future priorities

To improve service performance to ensure that all babies are offered a hearing screening test within first four weeks of life, and complete screening within 10 weeks of age.

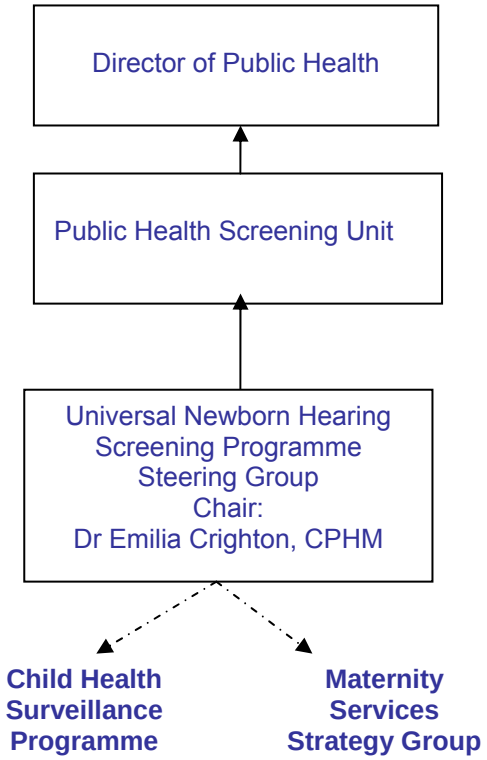
Appendix 7.1

Universal Newborn Hearing Screening Programme Steering Group (As at March 2009)

Dr Emilia Crighton	Consultant in Public Health Medicine (Chair)
Mrs Betty Adair	Lead Midwife
Mrs Donna Athanasopolous	PERL Resource Manager
Mrs Angela Bonomy	National Audiology Services Manager
Ms Elizabeth Callander	Lead Midwife
Mrs Patricia Carmichael	Paediatric Audiology Services Manager
Ms Gail Carroll	Assistant Technical Officer
Mrs Fiona Gilchrist	Assistant Programme Manager, Screening Dept
Mrs Annie Hair	CHP Children's Services Lead
Mrs Leigh Hamilton	Newborn Hearing Screening Manager
Mr James Harrigan	Head of Audiology
Mr Forbes Lauder	Head of Audiology
Mrs Annette Little	Information Analyst
Miss Denise Lyden	Project Officer
Mrs Eleanor McColl	Screening Service Delivery Manager
Dr Juan Mora	Consultant Audiological Physician
Mrs Julie Mullin	Assistant Programme Manager, Screening Dept
Mrs Debbie Murray	Senior Support Officer/Secretary
Dr Andrew Powls	Consultant Neonatologist
Ms Janice Winter	Clinical Effectiveness Manager
Dr Madeline White	Consultant Neonatologist
Ms Heather Young	Family Support

Appendix 7.2

Reporting Structure:
Universal Newborn Hearing Screening Steering Group



Key:

_____ Direct Reports

- - - - - - - Network Links

CHAPTER 8: FUTURE DEVELOPMENTS - PREGNANCY AND NEWBORN BLOODSPOT SCREENING PROGRAMMES

SUMMARY

- Since September 2009, all pregnant women are now offered foetal anomaly screening scanning when booking into antenatal care.

- It is planned that from summer 2010, all pregnant women will be offered combined ultrasound and biochemical screening in the first trimester of pregnancy. This involves measuring the biochemical markers in the mother's blood and is combined with the ultrasound measurement of nuchal translucency in the fetus.

- There are plans to introduce screening for Medium Chain Acyl CoA Dehydro-genase Deficiency (MCADD) in NHS Greater Glasgow and Clyde by summer 2010 as an addition to the current newborn bloodspot screening tests. The final implementation has still to be decided by National Services Division in consultation with NHS Boards.

- MCADD leads to an inability to metabolise sufficient energy from fat during periods of stress such as fasting, inter current illnesses with fever or surgery.

- NHS Greater Glasgow and Clyde plan to implement the Haemoglobinopathies screening programme by summer 2010.

- All pregnant women will be offered screening for sickle cell disease, thalassaemia and other haemoglobinopathies.

- Newborn babies will be screened for sickle cell disorders as part of the newborn bloodspot screening programme.

- An IT application is being developed to support the pregnancy and newborn bloodspot screening programmes. Implementation will be phased across the hospital and community sites from November 2009 to March 2010. It is expected that the IT application will:

    - remove the need for duplicating data entry and reduce data error
    - have inbuilt quality assurance and audit mechanisms
    - have inbuilt failsafe alert mechanisms
    - facilitate automation of letters and reports
    - will link a mother's antenatal screening history with her baby's screening record

CHAPTER 8: FUTURE DEVELOPMENTS - PREGNANCY AND NEWBORN BLOODSPOT SCREENING PROGRAMMES

Scottish Government's CEL 31 (2008) on *Changes to Pregnancy and Newborn Pregnancy programmes* sets out guidance for Boards to:

- to ensure all pregnant women are offered Down's syndrome and other congenital anomaly screening.
- extend the newborn bloodspot screening to include screening for Medium Chain Acyl CoA Dehydrogenase Deficiency (MCADD).
- introduce haemoglobinopathy screening during pregnancy and for newborn babies.

The Pregnancy and Newborn Implementation Group was set up to lead the planning and implementation of the changes to the pregnancy and newborn bloodspot screening programmes.

A short life working was also set up to develop a local training programme for staff. An initial training session took place in September 2009 to inform midwives of the changes to the Down's syndrome and other congenital anomaly screening. Additional training on the changes to the other pregnancy and newborn bloodspot screening programmes will be offered to midwives in 2010.

Down's syndrome and other congenital anomaly screening

From September 2009, all woman first bookers are now offered foetal anomaly screening scanning in the second trimester.

It is planned that, from summer 2010, all pregnant women will be offered Combined Ultrasound and Biochemical Screening in the first trimester of pregnancy. This involves taking a measurement of biochemical markers in the mother's blood and is combined with the ultrasound measurement of nuchal translucency in the fetus.

Women who do not present early enough in their pregnancy to take advantage of first trimester screening are offered second trimester serum screening. This will be strengthened by the addition of measurements of 2 additional biochemical markers (quadruple test) which will refine the risk assessment available to them.

By December 2009, the Laboratory will start offering quadruple screening for Down's syndrome to all women in Glasgow, and to all late bookers after the implementation of CUBS.

Newborn bloodspot screening for Medium Chain Acyl CoA Dehydro-genase Deficiency (MCADD).

It has been proposed that screening for MCADD will be introduced in NHS Greater Glasgow and Clyde by summer 2010. However, the implementation date is still to be confirmed by National Services Division.

What is MCADD?

MCADD is an inherited metabolic disorder which occurs with roughly the same incidence as phenylketonuria, for which newborn babies are already offered screening.

The abnormality leads to an inability to metabolise sufficient energy from fat during periods of stress such as fasting, inter current illnesses with fever or surgery. It is a recognised cause of unexpected death in infancy and of acute encephalopathy in infancy requiring intensive care, which has significant subsequent morbidity and mortality. Although rare, a significant proportion of individuals with MCADD die or have serious longer term outcomes.

Aim of the screening programme

The aim of offering this screening programme is to reduce mortality of newborns by implementing relatively straight forward interventions when cases are detected. Early recognition allows the introduction of appropriate feeding regimes which can be supplemented during periods of stress, as well as early implementation of appropriate management should the child require hospitalisation.

Haemoglobinopathies screening programme

NHS Greater Glasgow and Clyde plan to implement the new screening programme by March 2011.

Background

The haemoglobinopathies are a large group of inherited blood disorders which affect the haemoglobin (oxygen carrying) component of blood. They fall into two main groups:

– the haemoglobin variants (such as **sickle cell** disorders) which are associated with the production of abnormal forms of haemoglobin, and

– **thalassaemia** in which there is an abnormality in the amount of haemoglobin produced.

Many haemoglobinopathies are of no clinical significance whereas others are associated with severe morbidity and mortality, most notably sickle cell disorders and beta thalassaemia major. Sickle cell disorders, caused by a variant haemoglobin, often result in severe life threatening clinical symptoms. Those with beta thalassaemia major require regular blood transfusions to maintain life.

Though no haemoglobinopathy is exclusive to any single ethnic group, the frequency of these disorders varies considerably in different ethnic groups. These disorders originated in areas of the world where malaria is, or was, endemic because their occurrence conferred a survival advantage to those living in such areas. Thus, though haemoglobinopathies may be encountered in northern Europe, they are mainly associated with populations whose ancestry originated in Africa, Asia or around the Mediterranean.

A large number of haemoglobin variants are detected using current screening methods.

Those for which there is evidence that early intervention is likely to be beneficial and are therefore specified as part of the national screening programme are the following:

Table 7.1: Sickle cell disorders

Sickle cell anaemia (Hb SS)
Hb SC disease
Hb S/ß-thalassaemia*
Hb S/DPunjab
Hb S/OArab
Hb S/HPFH

Notes:

1 *This is inclusive of Hb S/ß+, Hb S/ß0,Hb S/□ß and Hb S/Lepore.

2 It is not possible at birth to differentiate with certainty between sickle cell anaemia (Hb SS), Hb S/ß0-thalassaemia and Hb S with Hereditary Persistence of Foetal haemoglobin (Hb S/HPFH), since all of these conditions produce only Hb F and Hb S on analysis. For the purpose of this programme it is essential to detect and report all such cases as 'sickle cell disease' without further detail in order to facilitate follow-up and diagnostic testing.

3 Although in general Hb S/HPFH is regarded as a much milder condition than the other sickling disorders, it is policy that for the purposes of this screening programme that Hb S/HPFH should be included as a form of sickle cell disease and follow-up offered.

4 Since there are many Hb 'D' variants and characterisation of the variant may take time, it is recommended that all 'D' haemoglobins are assumed to be the only clinically significant variant DPunjab(also called DLos Angeles). DNA analysis or mass spectrometry can then be used to elucidate the diagnosis. In addition to the sickle cell disorders, there is another set of conditions which are likely to be detected by the programme and in which the patient can benefit from follow-up.

These are shown in Table 7.2 as other clinically significant haemoglobinopathies. When these conditions are detected, the infants should be referred for clinical follow-up.

Table 7.2: Other clinically significant haemoglobinopathies

ß-thalassaemia major
ß-thalassaemia intermedia
Hb H disease
Hb E/ß-thalassaemia
Hb SE

Whilst the purpose of this programme is to detect infants with sickle cell disease, the analytical procedures currently utilised will also detect compound heterozygotes for a variety of haemoglobinopathies and carriers for Hb S and the other common haemoglobin variants (C, DPunjab, OArab and E) and in addition some of the rarer variants. Results of infants who are found to be compound heterozygotes or heterozygous for a common haemoglobin variant will be reported and follow-up counselling offered.

Due to the diversity of haemoglobin variants and thalassaemia syndromes, there will always be some situations that require further tests on different specimens or family studies before a conclusive clinical diagnosis can be achieved.

Aim of the screening programme

The aim of offering screening during the antenatal period is to identify couples who are at risk of having an affected child and thereby offer them information on which to base reproductive choices. It is important that screening is offered early so that the results of the screening tests and any prenatal diagnosis are available sufficiently early for couples to be able to make timely informed choices. Screening for sickle cell disorders and thalassaemia should be offered to all women as early as possible in pregnancy, and ideally by 10 weeks.

Neonatal screening is intended to confirm or identify newborns that are affected with sickle cell disorders so that penicillin prophylaxis and comprehensive care is promptly given. This has been shown to reduce morbidity and mortality.

Eligible population

Pregnancy

All pregnant women will be screened for sickle cell disease, thalassaemia and other haemoglobinopathies.

Newborn

Newborn babies will be screened for sickle cell disorders as part of the newborn bloodspot screening programme.

The screening tests

Pregnancy

The pregnant woman and her partner will be asked to complete a family origin questionnaire. The information from the questionnaire will be used to assess the risk of either parent being a carrier for sickle cell and other haemoglobin variants.

Screening will then be offered if either the woman or the baby's father fall into a high risk group.

A blood test is taken to screen the woman for sickle cell, thalassaemia and other haemoglobin variants. Where testing shows that the woman is a carrier, the baby's father is offered a screening test.

Newborn

The community midwife will take blood from a newborn baby’s heel using a blood letting device to screen for Sickle Cell and thalassaemia as part of the

newborn bloodspot screening programme. (See Chapter 6 for information on the current newborn bloodspot screening programme.)

The Family Origin questionnaire completed by the mother during pregnancy will be used to assess the risk status for sickle cell or other haemoglobinopathy variants.

For infants with sickle cell disorders, diagnostic testing should be undertaken before 2 months of age. Where required, testing of parents should be carried out at the same time.

Blood samples for diagnostic testing for sickle cell disease will be sent to a specialist laboratory that has expertise in haemoglobinopathy analysis. Two types of analysis can be used: high performance liquid chromatography or iso-electric focusing.

Screening pathway

Current process

A mapping exercise of the current service was recently carried out to determine what screening is offered to pregnant women and newborn babies across NHS Greater Glasgow and Clyde. Meaningful data on haemoglobinopathy screening could not be collected as this is not held centrally.

The gestational age at booking appointment is generally between 10 and 16 weeks. Routine bloods are tested for full blood count and mean cell haemoglobin and turnaround for results vary between hospitals from 24 hours to over two weeks.

Routine screening for thalassaemia is not conducted unless the pregnant women and/or her partner originate from a geographic area identified as having a high prevalence for thalassaemia or an alert is generated by the laboratory through blood test results.

The ancestry questionnaire in the hand held record is completed by the midwife in consultation with the pregnancy woman.

Screening for sickle cell disease appears to be contingent on blood results and consultant haematologist review where a recommendation will be made that screening for sickle cell disease be offered.

In some instances the consultant obstetrician will offer screening if the woman and/or her partner are identified from an ethnic group at risk.

All pregnant women are given a leaflet which gives basic general information about haemoglobinopathies and, in some cases, is supplemented by an explanation from midwives.

If screening is positive for thalassaemia or sickle cell disease, a return appointment with the consultant obstetrician is made for the woman and her partner to discuss next steps and possible options.

Neonatal bloodspot screening for sickle cell disease is not routinely conducted.

Future process

The future screening pathways for sickle disease and thalassaemia in pregnant women and newborn babies are illustrated in **Figures 8.1 and 8.2**.

Fig. 8.1 Antenatal Screening

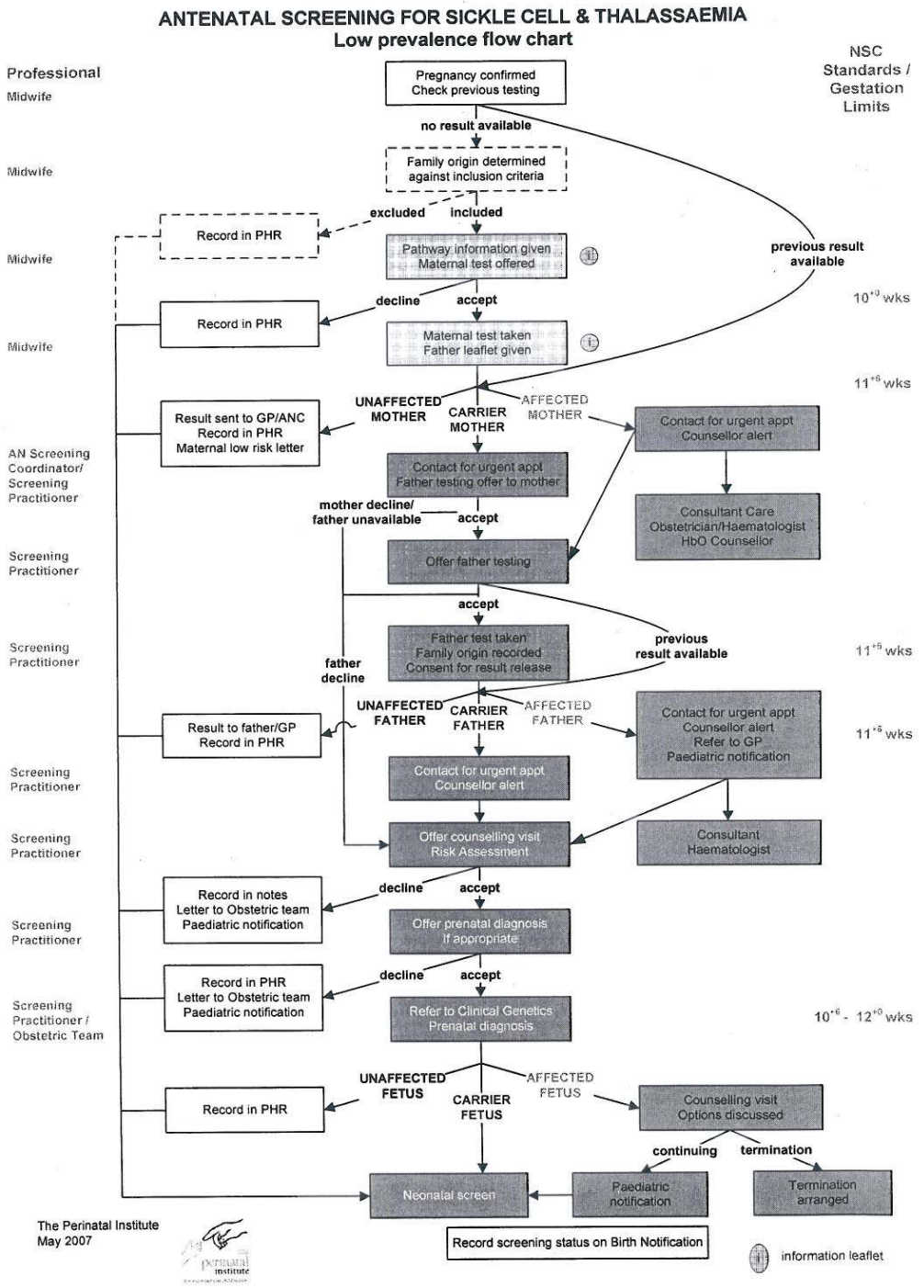
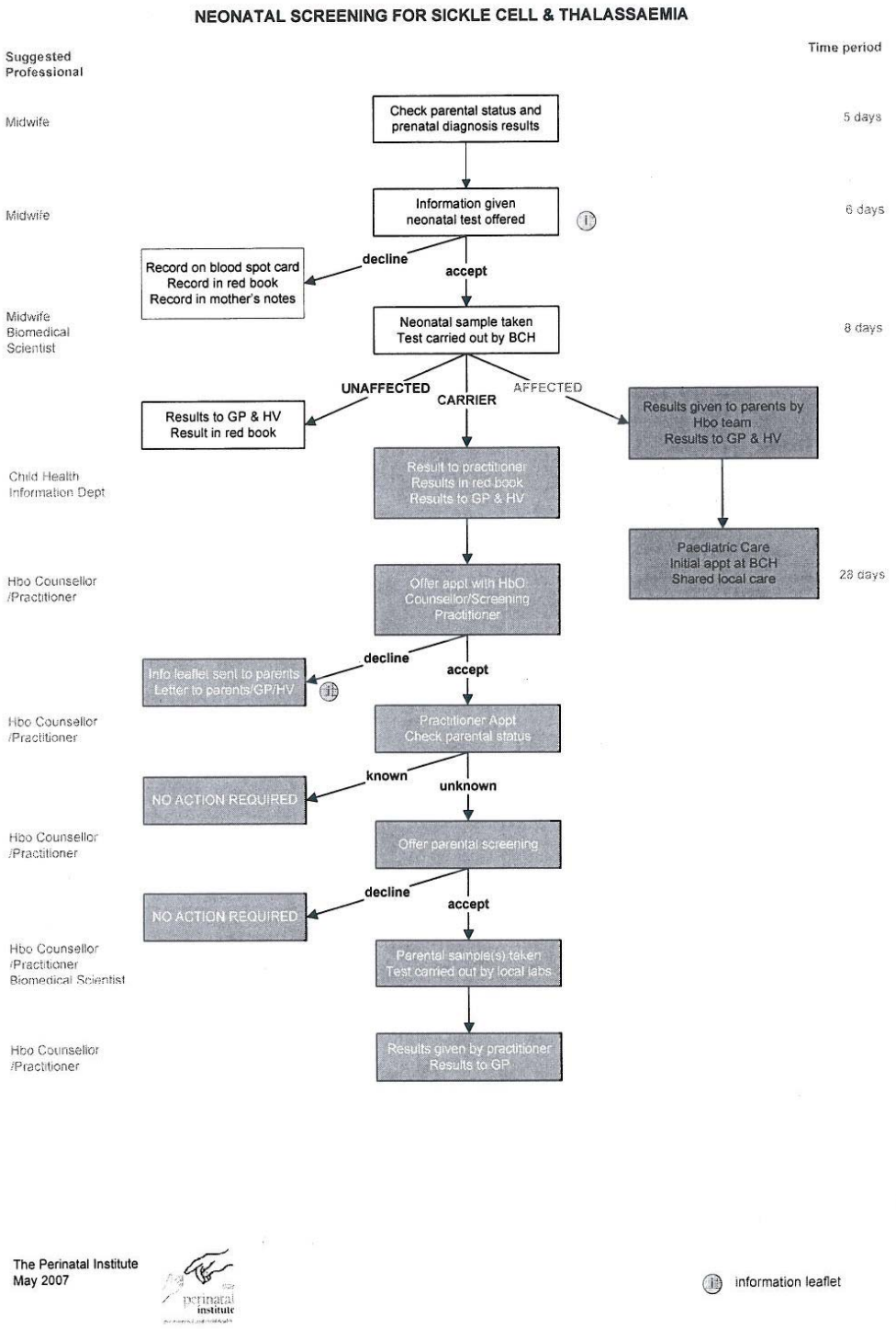


Fig. 8.2 Neonatal Screening



PREGNANCY AND NEWBORN (BLOODSPOT) SCREENING IT SYSTEM

The pregnancy screening programme will be supported by an information and management system which is currently being developed by our in-house developers. The information system will:

- allow the implementation of a failsafe approach for all screening during pregnancy and the monitoring of the performance against existing standards
- have inbuilt quality assurance and audit mechanisms
- have inbuilt failsafe alert mechanisms
- facilitate automation of letters and reports
- remove the need for duplicating data entry and reduce data error
- will link a mother's antenatal screening history with her baby's screening record

There will be a phased roll out of the application starting in November 2009 in Clyde maternity sites and then March in Greater Glasgow hospital and community maternity sites.

CHAPTER 9: DIABETIC RETINOPATHY SCREENING

SUMMARY

- Diabetic Retinopathy is a complication of diabetes affecting blood vessels of the retina and is the biggest single cause of blindness and visual impairment amongst working age people in Scotland.

- All people with diabetes aged 12 and over are eligible for the diabetic retinopathy screening using digital photography.

- The diabetes retinopathy screening using digital photography was implemented in August 2006 in Argyll and Clyde. The service was introduced in Greater Glasgow in 2002 and expanded and redesigned in 2006/07.

- The screening programme takes place in a variety of settings across Greater Glasgow and Clyde (including the Argyll and Bute area). There are four mobile screening units and ten fixed site locations.

- As at May 2009 there were 52,695 people with diabetes in NHS Greater Glasgow and Clyde.

- As at May 2009, 37,560 (71.4%) people with diabetes were screened for diabetic retinopathy. At least 9.3% of patients with diabetes who were invited for screening did not take up the offer of screening. This could be an underestimate of the current situation as approximately 20% of screening appointments are reported as “did not attend” by the service. 2525 (4.8%) patients were permanently suspended from the screening programme as they were already attending an ophthalmology clinic.

- In February 2008, a review of the patient pathway was undertaken to assess the effectiveness of the referral to ophthalmology process and the completeness of feedback received following attendance at ophthalmology clinics. Following the review, the service identified control measures that should be put in place that will allow the continuous monitoring of the delivery of the administrative tasks and the provision of feedback from ophthalmology clinics. These include a “return receipt” for ophthalmology referrals and access to the Diabetic Retinopathy Screening information and management system in Ophthalmology clinics.

- Work commenced in late 2008 to develop a single Greater Glasgow and Clyde service and to integrate the diabetes information management systems by April 2009.

CHAPTER 9: DIABETIC RETINOPATHY SCREENING

Background

Diabetic Retinopathy is a complication of diabetes affecting blood vessels of the retina and is the biggest single cause of blindness and visual impairment amongst working age people in Scotland. Retinopathy is symptom-free until its late stages and programmes of retinal screening can reduce the risk of blindness on diabetic population by detecting retinopathy at a stage at which it may be effectively treated. If it is detected early enough, laser treatment can prevent the progression of the disease and save sight for many years in most patients.

In 2008/09 the NHS Greater Glasgow and Clyde Diabetic Retinopathy Screening was provided by two separate services, one covering the Greater Glasgow area and the other covering the Argyll and Clyde area. The screening service using digital photography was implemented in August 2006 in Argyll and Clyde. The service was introduced in Greater Glasgow in 2002 and expanded and redesigned in 2006/07.

The service level agreement in place with NHS Highland for NHS Greater Glasgow and Clyde to offer the diabetic retinopathy screening programme to residents in Argyll and Bute was terminated on 31 March 2009.

Aim of screening programme

The primary aim of the programme is the detection of referable (sight-threatening) retinopathy.

A secondary aim is the detection of lesser degrees of diabetic retinopathy. This can have implications for the medical management of people with diabetes.

Eligible population

All people with diabetes aged 12 and over who are resident in the NHS Greater Glasgow and Clyde area.

The screening test

In the first instance a digital photograph is taken of the individual's retina. If the photograph cannot be graded then a further slit lamp examination will be performed.

Clinic Setting

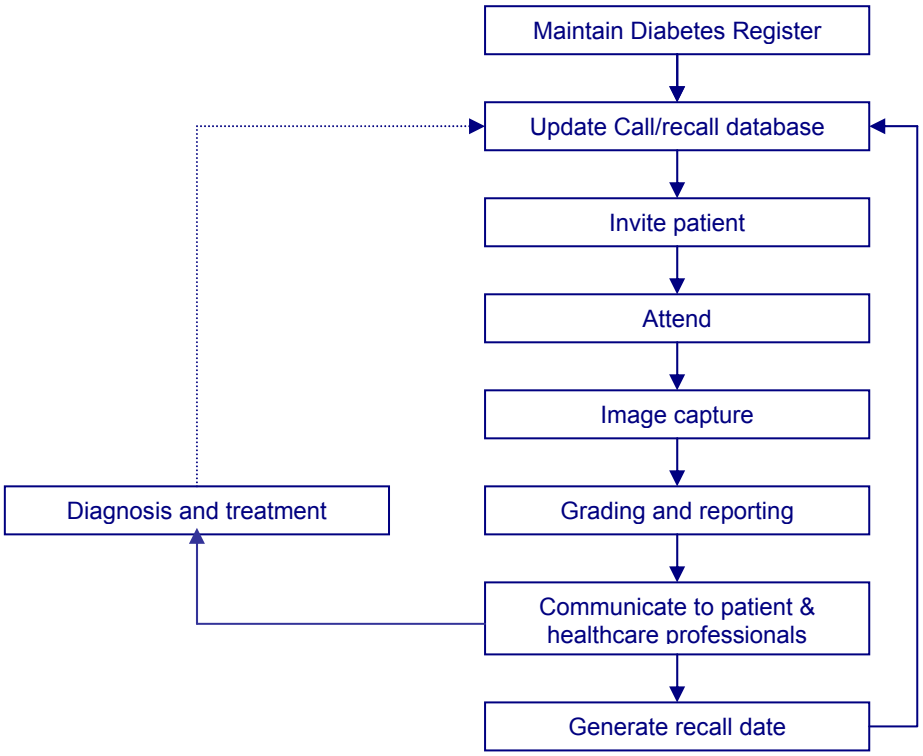
The screening programme takes place in a variety of settings. This can either be at a fixed site or within a mobile screening unit, which visits health centres and other locations around the area. In 2008/09 across Greater Glasgow and Clyde (including Argyll & Bute) there were ten fixed site locations and four mobile screening units which visited 27 locations.

The Glasgow service also provides a slit lamp service from their four hospital sites for those patients who are not suitable for retinal photography.

Foreseen benefits of programme

To identify and treat sight threatening diabetic retinopathy.

Screening Pathway



Delivery of Screening Programme 2008/09

Table 9.1 shows the number of people with a diagnosis of diabetes by age group and CH(C)P area of residence. There were 52,695 people with diabetes in NHS Greater Glasgow and Clyde as at 6 May 2009. This represents an increase of 9% (4335) from the previous year 2007/08. At present the current prevalence of diabetes for NHSGGC is 4%.

Table 9.1 Eligible population for DRS screening split by CH(C)P and age group

CH(C)P	12 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 - 89	90 - 99	100+	Total
East Glasgow	71	149	233	663	1213	1581	1535	567	62	1	**6075**
North Glasgow	51	103	187	504	854	1064	1147	417	49		**4376**
South East Glasgow	40	122	263	573	1032	1045	918	385	31		**4409**
South West Glasgow	56	118	239	649	1134	1315	1338	499	43		**5391**
West Glasgow	52	181	243	561	964	1225	1200	575	65		**5066**
East Dunbartonshire	58	82	141	362	733	1065	1096	496	42	1	**4076**
West Dunbartonshire	45	103	169	416	852	1101	994	398	42		**4120**
East Renfrewshire	44	66	112	329	612	831	880	404	40		**3318**
Renfrewshire	95	152	308	769	1386	1953	1851	730	60	2	**7306**
Inverclyde	50	75	135	358	678	945	878	356	40		**3515**
North Lanarkshrie [1]	11	23	31	82	164	225	183	63	3		**785**
South Lanarkshire [1]	28	57	112	253	482	644	631	214	18		**2439**
Unassigned [2 3]	15	112	121	196	292	351	342	287	98	5	**1819**
NHS GGC Total	**616**	**1343**	**2294**	**5715**	**10396**	**13345**	**12993**	**5391**	**593**	**9**	**52695**

Source: Sorian-SCI DC Comparision 6 May 2009

[1] NHSGGC residents only

[2]Unassigned due to no postcode available

[3] Due to postcode not being available some patients may not be GGC Residents

Table 9.2 Total numbers and percentages of total eligible and diabetic populations split by depriviation categories resident in NHS Greater Glasgow and Clyde

Deprivation cateogory	Total Diabetic Population [1]	% of Total Diabetic Population	NHS GGC Total Population[2]	% Diabetics of Total Population
Most deprived 1	21614	41.1	444830	4.9
2	9735	18.5	206258	4.7
3	6409	12.2	157846	4.1
4	5883	11.2	164802	3.6
Least Deprived 5	7232	13.7	220736	3.3
Total [3]	**52624**	**100**	**1194472**	**4.4**

[1] Sorian-SCI DC Comparision 6 May 2009

[2] Small Area Population Estimates (SAPE) 2008

[3] 1751 (3.3%) of Diabetic Population could not be assigned SIMD due to incomplete/missing postcode

Table 9.3 shows the eligible population with diabetes across deprivation categories. 21,614 (41%) of patients with diabetes are resident in the most deprived area compared to 7,233 (13.7%) who live in the least deprived area.

Table 9.3 NHS Greater Glasgow & Clyde eligible population for DRS screening split by deprivation category (SIMD 2006) and age group

	SIMD 2006 Most Deprived				Least Deprived		
Agegrp	1	2	3	4	5	Not Assigned [1,2]	Total
12 to 19	212	89	85	89	126	15	**616**
20 to 29	500	233	177	153	168	112	**1343**
30 to 39	971	432	273	262	235	121	**2294**
40 to 49	2489	1071	687	605	667	196	**5715**
50 to 59	4329	1813	1268	1281	1413	292	**10396**
60 to 69	5493	2455	1633	1509	1905	350	**13345**
70 to 79	5403	2491	1579	1361	1817	342	**12993**
80 to 89	2041	1046	636	563	818	287	**5391**
90 to 99	175	105	70	59	82	35	**526**
100+	1		1	1	1	1	**5**
NHS GGC Total Diabetic	**21614**	**9735**	**6409**	**5883**	**7232**	**1751**	**52624**

Source: Sorian-SCI DC Comparision 6 May 2009

[1]Unassigned due to no postcode available

[2] Due to postcode not being available some patients may not be GGC Residents

At the time of writing the annual report, difficulties in extracting meaningful data from the information management system supporting the diabetic retinopathy screening service has led us to use a comparison of data between SCI-DC and Soarian taken at May 2009 (see Table 9.4).

Table 9.4 Number of eligible population screened and status of screening for DRS screening programme

Status of Patient	Number	% of total
Total Population	52624	
Patients suspended permanently	2525	4.8%
Patients suspended temporarily	3939	7.5%
Did Not Attend (DNA)	4903	9.3%
Patients already Screened	37560	71.4%
Patients invited for a screen	3694	7.0%

Source: Sorian-SCI DC Comparision taken on 6 May 2009

As at May 2009, 37,560 (71.4%) patients were screened. 9.3% (4,906) people with diabetes were classified in Soarian as having not attended their appointment. (This could be an underestimate of the current situation as each week between 20% - 30% of invited patients do not attend, although some will attend later after receiving a reminder letter). 2,525 (4.8%) patients were suspended from the screening programme as they are already attending an ophthalmology clinic.

Service review

During early 2009 Greater Glasgow and Clyde Diabetic Retinal Screening services were brought into a single management structure with a single IT system to manage patient screening and onward referrals.

In 2008, a Critical Incident Review made a recommendation to implement the Diabetic Retinopathy Screening information management system in all ophthalmology clinics. Due to national work to upgrade Soarian and SCI DC systems, it has been necessary to delay implementation until Spring 2010.

In November 2008, the Clyde service began screening from a clinic room within Greenock Health Centre rather than having to use one of the mobile screening units.

Work has still to be undertaken to try and reduce the number of people who do not show up for appointments.

Integration of Information systems

There are two main information sets used in the provision of Diabetic Retinopathy Screening. SOARIAN provides the call/recall, image capture, grading, quality assurance and result delivery.

SCI-DC is an essential component for effective Diabetic Retinopathy Screening. It provides the diabetes population register for the call/recall for DRS and results of the Diabetic Retinopathy Screening which are available to clinical staff involved in the care of patients with diabetes.

Work was completed in June 2009 to integrate the NHS Greater Glasgow and Clyde diabetes information management systems across NHS Greater Glasgow and Clyde. However, technical issues have arisen and workarounds are in place to act as a failsafe to ensure all patients complete the screening episode and are referred appropriately.

Outstanding issues

To reduce the time currently taken to report results to patients and general practitioners in Greater Glasgow.

Challenges and future priorities

- It is anticipated that the number of people with diabetes will continue to increase that would require additional service capacity in the future. At present the current prevalence of diabetes for NHSGGC is 4%.

- Work will be undertaken to try and reduce the number of people who do not show up for appointments.

- The management team is exploring how the service capacity can be increased within the existing budget.

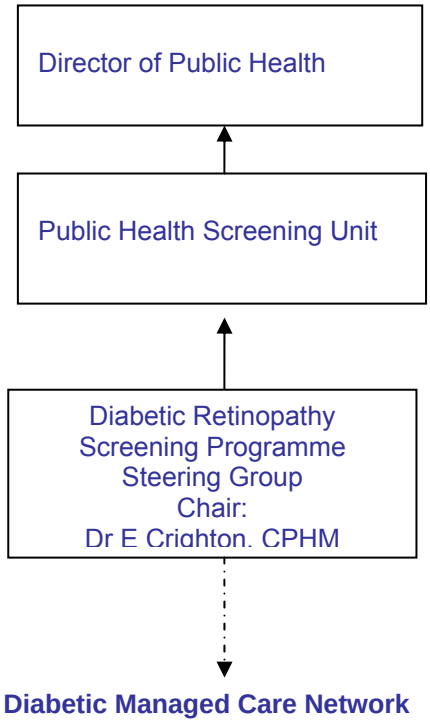
Appendix 9.1

Members of Diabetic Retinopathy Screening Steering Group (As at March 2009)

Dr Emilia Crighton	Consultant in Public Health Medicine (chair)
Mrs Donna Athanasopolous	PERL Resources Co-ordinator
Mrs Jean Blackwood	Programme Director, Clyde Condition Management Programme
Mr Mark Darroch	HIT Joint Services Manager - Screening
Ms Janette Docherty	Medical Records Manager
Mrs Fiona Gilchrist	Assistant Programme Manager, Screening Dept
Mrs Annie Hair	Head of Children's Services
Ms Marianne Hayward	Co-ordinator for MCN for Diabetes
Mrs Fiona Heggie	Clinical Nurse Co-ordinator
Mrs Annette Little	Information Analyst
Miss Denise Lyden	Project Officer
Mrs Eleanor McColl	Screening Service Delivery Manager
Miss Chris McNeill	Head of Assessment and Care Services
Mr Eddie McVey	Optometric Advisor
Ms Patricia Morrison	DRS Manager
Dr Kirsty Proctor	Diabetes MCN Co-ordinator
Mr Keith Redpath	Director - West Dunbartonshire CHP
Mrs Elizabeth Rennie	Programme Manager, Screening Dept
Ms Karen Ross	MCN & CDM Planning Manager
Mr David Sawers	DRS Service Manager
Dr William Wykes	Consultant Ophthalmologist

Appendix 9.2

Reporting Structure:
Diabetic Retinopathy Screening Steering Group



Key:
_____ Direct Reports
- - - - - - - Network Links

CHAPTER 10: PRE-SCHOOL VISION SCREENING

SUMMARY

- All children born between 1 March 2004 and 28 February 2005 were offered pre-school vision screening in 2008/09.
- 13,235 children aged between four to five years old were identified using the Community Health Index System as being eligible for pre-school vision screening.
- 10,175 children were screened out of 13,235 eligible children in 2008/09. This gives an uptake rate of 76.9%. The uptake rate varies across the geographical location from 67.2% in East Glasgow to 81.1% in Clyde.
- 604 (4.6%) of eligible children were already attending an eye clinic.
- 63 (0.5%) parents refused consent for their children to be screened.
- 8,534 children were screened in a nursery setting; that represents 83.9% of all screened children and 64.5% of all eligible children.
- Children who could not be screened in the programme at the end of the school year were invited to a hospital Orthoptic Department for screening. This represents 14.2% (1,874) of the total eligible population (13,235). This includes children resident in East Glasgow where staff shortage has had an impact on the delivery of screening in nurseries.
- Following screening, 2,761 (27.1%) children were referred for further assessments. Of these, 301 (10.9%) were referred to a Community Optometrist for further assessment. This represents 2.27% of the total eligible population.
- 7,414 (72.9%) of children screened had a normal result following screening.
- The recruitment of Orthoptists to allow the delivery of screening in nurseries is a challenge and priority for the pre-school vision programme. In 2008, three Assistant Practitioners were appointed to the service to support Orthoptists with administrative duties.

CHAPTER 10 : PRE-SCHOOL VISION SCREENING

Background

Orthoptic, nursery based, Vision Screening is offered to pre school age children resident in NHS Greater Glasgow and Clyde area. UK National Screening Committee Child Health Sub-Group Report on Vision Screening (May 2005) states that "All children should be screened for visual impairment between four and five years of age" and the Scottish Executive Health Department guidance on implementation of Health for All Children 4 in Scotland (April 2005) advises that "All children should be screened by an Orthoptist in their pre-school year, between the ages of four and five years".

Amblyopia can be caused by either a squint (strabismus) or differences in the focussing power of each eye (refractive error) which results in the brain receiving different images from each eye**.** In an adult, receiving two images causes double vision, but a child compensates for the difficulty by suppressing one of the images. If this defect goes untreated this leads to reduced vision in one or, in some cases, both eyes. The screening programme can also detect reduced vision due to structural abnormality or disease of the media, fundi or visual pathways.

Amblyopia and strabismus affects 3-6% of children, and although obvious squints are easily detected, refractive error and subtle squints often go undetected and thus amblyopia develops. Amblyopia can be treated using spectacle lenses to correct any refractive error and occlusion therapy - mainly eye patches. 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.

Aim of vision screening programme

The aim of the screening programme is to detect reduced visual acuity, the commonest causes of which are amblyopia and refractive error.

There is emerging evidence that good screening and treatment result in lower incidence of significant permanent vision loss.

Screening setting

The screening takes place in a child's nursery setting as experience has shown that it greatly improved coverage of screening. Children that are not registered with nurseries are screened in a secondary care setting.

The screening test

The basic screen is a visual acuity test where children are asked to match a line of letters or pictures to a key card or to describe a line of pictures.

Screening pathway

The list of eligible children (the school intake cohort for the following year), with dates of birth between 1 March 2004 and 28 February 2005, were downloaded from CHI and matched against the lists received from nurseries.

The vision screening clinic took place in the nursery setting. The pre-school children that did not attend nursery, those whose nursery was unknown to the screening programme and the children that missed their appointment within the nursery were invited to a hospital Orthoptic Department to have their vision screened.

Following screening, a proportion of children required further testing. They were referred to secondary care for further assessment in the ophthalmology department to the shared care paediatric clinic that was in the same geographical sector as the nursery, unless the parent wished for the child to be seen in another Orthoptic Department that was closer to their home. A proportion of children requiring "further assessments" that comply with existing protocols were referred to the community optometrists. The assessment appointment involved a full General Ophthalmic Services (GOS) eye examination. At that stage the examination determined if the screen was a false positive and no further action was required, or if the screen was positive and if so the specific disorder identified and treated.

Eligible population

All children resident in the NHS Greater Glasgow and Clyde are offered screening for visual impairment between four and five years of age in the pre-school year.

In 2008/09, 13,235 children aged between four to five years old were identified using the Community Health Index System as being eligible for pre-school vision screening (Table 10.1).

Table 10.1 Eligible Population for Pre-School Vision by CHCP and deprivation category

	Most deprived				Least Deprived	
CHCP	**1**	**2**	**3**	**4**	**5**	**Total**
East Glasgow	963	128	97	86	29	**1303**
East Dunbartonshire	55	141	105	191	547	**1039**
East Renfrewshire	84	84	96	135	719	**1118**
Inverclyde	382	121	90	142	120	**855**
North Lanarkshire [1]	29	36	49	128	42	**284**
North Glasgow	845	55	51	89	95	**1135**
Renfrewshire	548	291	373	288	390	**1890**
South East Glasgow	465	297	150	191	77	**1180**
South Lanarkshire [1]	212	111	55	196	70	**644**
South West Glasgow	787	290	186	80	85	**1428**
West Dunbartonshire	402	311	154	90	59	**1016**
West Glasgow	583	194	150	123	206	**1256**
Grand Total	**5355**	**2059**	**1556**	**1739**	**2439**	**13235**

Source: Vision Works - extract taken on 16 October 2009

[1] GG&C residents only

SIMD - Scottish Index for Multiple Deprivation 2006

Note: 87 patients unable to decifer CH(C)P or SIMD due to incomplete/incorrect postcode (inc in total)

Delivery of screening programme 2008/09

Table 10.2 shows the number of children eligible for screening for each geographical area; the number of children who were invited to be screened at a hospital Orthoptic Department; the number of children who moved out of the Board area; the number of children already attending an eye clinic, and the number of refused consent.

Table 10.2 Eligible Population for Pre-School Vision screening

	Argyll & Bute		North		South		East		West		Clyde		Unknown[3]		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Total number of eligible children[1]	189	100	2132	100	4170	100	1063	100	2301	100	3151	100	229	100	**13235**	**100**
Number of children invited to be screened at hospital[2]	60	31.7	674	31.6	1182	28.3	535	50.3	717	31.2	685	21.7	229	100.0	**4082**	**30.8**
Number of children transferred out	10	5.3	40	1.9	105	2.5	21	2.0	43	1.9	82	2.6	151	65.9	**452**	**3.4**
Number of children already attending an eye clinic	7	3.7	111	5.2	171	4.1	48	4.5	112	4.9	153	4.9	2	0.9	**604**	**4.6**
Consent denied	0	0.0	30	1.4	44	1.1	11	1.0	37	1.6	1	0.0	2	0.9	**125**	**0.9**

Source: Vision Works - extract taken on 16 October 2009

[1] Children aged 4 - 5 years old were identified from a download using the Community Health Index

[2] Includes children absent from, or not registered with, a nursery

[3] Optician screening

4,082 (30.8%) of the eligible children were invited to be seen by a hospital Orthoptics Department.

604 (4.6%) of eligible children were already attending an eye clinic.

125 (0.9%) parents refused consent for their children to be screened.

Table 10.3 shows, by geographical sector, the total number of children screened and the split between nursery based screening and hospital based screening; the number and rate of children referred to a community optometrist for further assessment; and the overall uptake rate.

Table 10.3 Uptake rates for pre-school vision screening

	Argyll and Bute[1]	North	South	East	West	Clyde	Total
Number screened in Nursery	121	1351	2801	486	1469	2306	**8534**
Number screened in Hospital[1]	24	291	480	228	325	250	**1598**
Total Number Screened	145	1642	3281	714	1794	2556	**10175**[3]
Did Not Attend Hospital Screening	22	332	578	262	340	340	**1874**
Number Eligible[2]	189	2132	4170	1063	2301	3151	**13235**[4]
% Uptake	**76.7**	**77.0**	**78.7**	**67.2**	**78.0**	**81.1**	**76.9**

Source: Vision Works - extract taken on 16 October 2009

[1] NHS Greater Glasgow and Clyde children attending nursery in Argyll and Bute area

[2] Includes children absent from, or not registered with, a nursery and also children resident in East Glasgow

[3] Children aged 4 - 5 years old were identified from a download using the Community Health Index

[4] 43 Children were screened in NHS Lanarkshire

[5] 229 Children were screening in community settings (Opticians)

10,175 children were screened out of 13,235 eligible children in 2008/09. This gives an uptake rate of 76.9%. The uptake rate varies across the geographical location from 67.2% in East Glasgow (due to staff shortage required to deliver the screening programme) to 81.1% in Clyde.

Children who could not be screened in the programme at the end of the school year were invited to a hospital Orthoptic Department for screening. This represents 14.2% (1,874) of the total eligible population (13,235). This includes children resident in East Glasgow where staff shortage has had an impact on the delivery of screening in nurseries.

8,534 children were screened in a nursery setting; that represents 83.9% of all screened children and 64.5% of all eligible children.

Table 10.4 shows the results of screening split by screening settings for which data is available and geographical area.

7,414 (72.9%) of children screened had a normal result following screening.

Following screening, 2,761 (27.1%) children were referred for further assessments. Of these, 301 (10.9%) were referred to an Optometrist for further assessment. This represents 2.27% of the total eligible population.

Table 10.3 Screening Outcomes[1]

	Argyll and Bute[1]		North		South		East		West		Clyde		Total		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Normal Result (NAD) Nursery	93	64.1	951	57.9	2187	66.7	376	52.7	828	46.2	1862	72.8	6297	61.9	
Normal Result (NAD) Hospital	24	16.6	188	11.4	319	9.7	147	20.6	191	10.6	211	8.3	1080	10.6	
Total - Normal Result	**117**	**80.7**	**1139**	**69.4**	**2506**	**76.4**	**523**	**73.2**	**1019**	**56.8**	**2073**	**81.1**	**7414**	**72.9**	[2]
Referred for Assessment by Nursery	28	19.3	400	24.4	614	18.7	110	15.4	641	35.7	444	17.4	2237	22.0	
Referred for Assessment by Hospital	0	0.0	103	6.3	161	4.9	81	11.3	134	7.5	39	1.5	518	5.1	
Total - Referred for Assessment	**28**	**19.3**	**503**	**30.6**	**775**	**23.6**	**191**	**26.8**	**775**	**43.2**	**483**	**18.9**	**2761**	**27.1**	[2]
Total Number of Children Screened	**145**		**1642**		**3281**		**714**		**1794**		**2556**		**10175**		[2]
Total number of children referred to a community Optometrist	**0**	**0.0**	**106**	**5.0**	**33**	**0.8**	**14**	**1.3**	**148**	**6.4**	**0**	**0.0**	**301**	**2.3**	[3]

Sources: Vision Works - extract taken on 16 October 2009 [1]

[1] NHS Greater Glasgow and Clyde children attending nursery in Argyll and Bute area

[2] 43 Children in total were screened in NHS Lanarkshire; 37 had an outcome of NAD; 6 had an outcome of Refer

[3] Percentage is of number of children eligible

Note: Percentages are of total number of children screened

Workforce Issues

In 2008, three Assistant Practitioners were appointed to the service to support Orthoptists with administrative duties.

Mop up clinics to screen children by North and South Glasgow Orthoptists were arranged to cope with the backlog of children to be screened in East Glasgow due to the staffing resources. In addition, an Orthoptist from the Southern General service agreed to screen nursery children in East Glasgow every Thursday during term time. As a result, uptake had improved from 34% from previous year to 67.2% in 2008/09 (Table 10.3).

Despite all efforts to recruit to the vacant Orthoptist post in East Glasgow, the post remains unfilled due to a national shortage of Orthoptists. Sessions are being covered by Orthoptists from other parts of the service.

Information systems

The VisualWorks system supports the delivery of the programme in the Greater Glasgow and Clyde. Work is progressing to develop a more robust reporting tool.

Challenges and future priorities

The recruitment of Orthoptists to deliver screening as agreed is a challenge and priority for the pre-school vision screening programme.

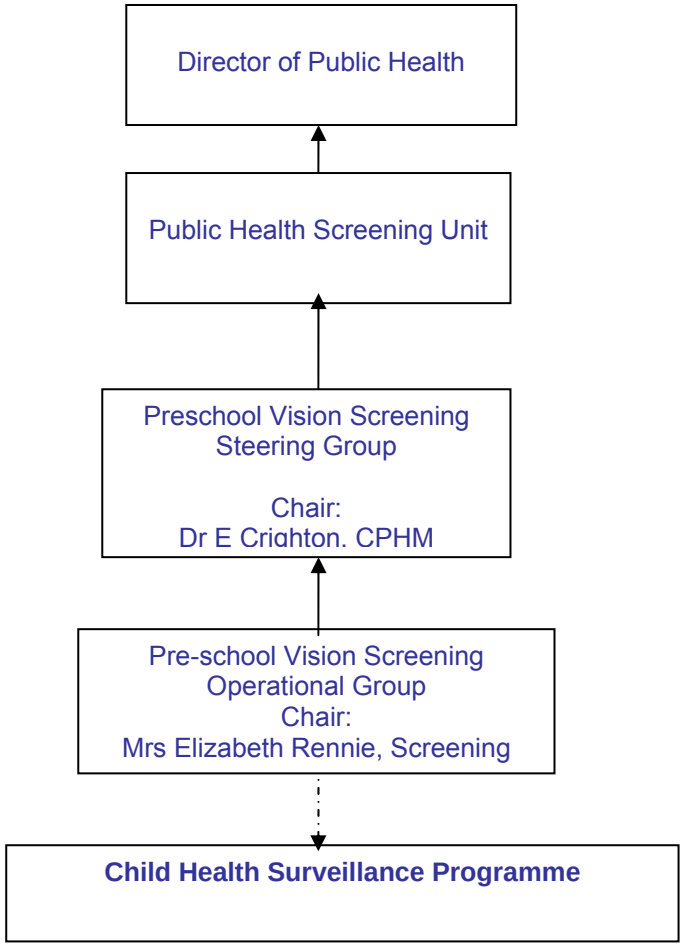
Appendix 10.1

Members of Pre-school Vision Screening Steering Group (As at March 2009)

Dr Emilia Crighton	Consultant in Public Health Medicine (Chair)
Mrs Donna Athanasopolous	PERL Resources Co-ordinator
Mrs Joan Ballantyne	Head Orthoptist
Mrs Angela Carson	Head of Optometry
Ms Mary Cunningham	Clinical Service Manager
Mrs Maggie Darroch	Optometrist
Ms Irene Forrest	Nursery Lead
Mrs Fiona Gilchrist	Assistant Programme Manager, Screening Dept
Ms Susan Groom	General Manager
Ms Shogufta Haq	Health Promotion Officer
Mrs Marian Hodgeson	Head of Pre-Five Children Strategy
Mrs Annette Little	Information Analyst
Miss Denise Lyden	Project Officer
Mrs Eleanor McColl	Screening Service Delivery Manager
Mr Stephen McLeod	General Manager -Specialist Children's Services
Ms Linda Morris	Senior Health Promotion Officer
Mrs Debbie Murray	Secretary/Senior Support Officer
Mrs Elizabeth Rennie	Programme Manager, Screening Dept
Mrs Diane Russell	Head Orthoptist
Mrs Elaine Salina	Principal Optometrist

Appendix 10.2

Reporting Structure:
Pre-School Vision Screening Steering Group



Key:

_____ Direct Reports

- - - - - - - Network Links

Acknowledgments

This annual report was prepared by the Public Health Screening Unit in collaboration with members from the screening programmes steering groups, Public Health Protection Unit, Annette Little from Information Services, Stuart Imrie, Cytogenetics Laboratory, Joan Mackenzie, National Newborn Screening Laboratory and Jenny Crossley, Regional Pregnancy Screening Laboratory.

Many thanks go to all the healthcare professionals, support staff and Screening Department for helping to deliver the screening services across NHS Greater Glasgow and Clyde.

The programmes have also benefited from the close links held with the Child Health Surveillance Programme (CHSP), Maternity Services Strategy Group, Regional Cancer Advisory Group and the Diabetes Managed Care Network.