Greater Glasgow and Clyde NHS Board

NHS Greater Glasgow and Clyde

Director of Public Health **Board Paper No. 12/43**

Report of the Director of Public Health :
Childhood Immunisation and Staff Flu Vaccination Programmes

Recommendations:
The NHS Board is asked to receive and note the content of the report

1. Summary

1.1 Childhood immunisation programme

- Very good local immunisation uptake rates for babies by 12 months of age
- By the age of 24 months of age the uptake rates are above the 95% target set by the Scottish Government and the World Health Organisation
- Significant improvement of the MMR uptake rate by 5 years of age following the decline in the MMR uptake rate due to the controversy about the MMR vaccine, linking the vaccine to inflammatory bowel disease and autism.
- There are likely to be changes to the childhood immunisation programme over the next few years with significant resource implications

1.2 Human Papilloma Virus vaccine

- Note the very good uptake rate of the routine S2 programme in NHSGG&C compared to national rate
- Note the uptake rates for girls in the catch up cohort with the NHSGG&C rate similar to Scotland
- Note the significant differences in the uptake rate among girls who were targeted at school and those who were targeted in the community. This data supports the concept that the best way to immunise school age children is through a school based programme rather than intervention in the community

1.3 Staff Flu Vaccination Programme 2012/13

- Note that historically the uptake of flu vaccine among health care staff has been very low and below 15%
- During the 2009/10 H1N1 flu pandemic, the uptake rate improved to 50%
- Following the pandemic, in 2010/11, the initial uptake among health care staff was approximately 12%, however following additional intervention the uptake rate in 2010/11 improved to 23%
- In 2011/12 season the Scottish Government set a target of 50% uptake rate among health care staff. Despite additional effort the uptake in NHSGG&C was 33%. This compared to approximately 30% overall uptake rate in Scotland
- In an attempt to further improve the vaccination rate the Scottish Government wrote to all Health Boards, recommending that all boards identify flu champions in all health care settings who could subsequently champion the flu vaccine among staff
- Thirty-eight flu champions have been identified within NHSGG&C by various directorate and CHPs. The Directorate of Public Health is coordinating the planning and implementation of the staff flu vaccination programme working with flu champions, occupational health and other
- A number of vaccination strategies will be adopted this year (2012/13) that include peer immunisation, mass vaccination clinics, roving teams and individual appointment at Occupational Health department
- A comprehensive marketing strategy is also planned to ensure that staff have access to all the necessary information about the vaccine, the benefits of the vaccine and how to access the vaccine

2. Childhood Immunisation Programmes

2.1 Introduction

Children in NHSGG&C are protected through immunisation against many serious infectious diseases. Vaccination programmes aim both to protect the individual and to prevent the spread of these illnesses within the population. As a public health measure, immunisations have been hugely effective in reducing the burden of disease. The immunisation schedule used in the NHSGG&C is the same as the schedule used in other parts of the UK.

The UK childhood immunisation schedule covers the recommended immunisations for children and young people who are aged 0 – 18years. The schedule comprises of the recommended universal routine immunisations which are offered to all children and young people at specified ages, as well as selective and non routine immunisations which are targeted to children at higher risk from certain diseases (tables 1 and 2). The immunisation schedule is continually reviewed and updated based on the advice from the independent scientific advisory committee, Joint Committee on Vaccination and Immunisation (JCVI)

Table 1 Current UK childhood Immunisation schedule in both NHSGG&C and UK

When to immunise	What vaccine is given	How it is given
Two months old	Diphtheria, tetanus, pertussis (whooping cough), polio and Haemophilus influenzae type b (DTaP/IPV/Hib)	One injection
	Pneumococcal (PCV)	One injection
Three months old	Diphtheria, tetanus, pertussis (whooping cough), polio and Haemophilus influenzae type b (DTaP/IPV/Hib)	One injection
	Meningococcal C (MenC)	One injection
Four months old	Diphtheria, tetanus, pertussis (whooping cough), polio and Haemophilus influenzae type b (DTaP/IPV/Hib)	One injection
	Pneumococcal (PCV)	One injection
	Meningococcal C (MenC)	One injection
12 to 13 months old	Haemophilus influenzae type b and meningococcal C (Hib/MenC)	One injection
	Pneumococcal (PCV)	One Injection
	Measles, mumps and rubella (MMR)	One injection
Three years four months to five years old	Diphtheria, tetanus, pertussis and polio (dTaP/IPV or TaP/IPV)	One injection
	Measles, mumps and rubella (MMR)	One injection
12 to 13 years old (Girls only)	Human Papilloma Virus (HPV)	Three injections over six months
13 to 18 years old	Tetanus, diphtheria and polio (Td/IPV)	One injection

Table 2 Non-routine immunisations for at-risk babies

When to immunise	What vaccine is given	How it is given
At birth (for babies more likely to come into contact with TB than the general population)	BCG (against tuberculosis)	One injection
At birth (for babies whose mothers or close family members are hepatitis B positive)	Hepatitis B	Three injections, with a month in between each, followed by a booster dose at 12 months

The JCVI has recently recommended that all children between the ages of 2 and 17 years should be given the flu vaccine on an annual basis and this recommendation has been accepted by all the UK administrations. It is expected that this programme will start in October 2014 when adequate supplies of the vaccine that is planned to be used are likely to be available. This is an intra-nasal vaccine delivered through a nasal spray and can be delivered by non-professional staff. It is most likely that all pre-school children will be offered the vaccine through general practice and school aged children will be targeted through the school health service. This will be a challenging task for the school health service given the size of this health board with over 180,000 children targeted on an annual basis. This will also require significant investments in the school health service however the details of how this vaccine may be delivered in the UK is going to be further discussed and agreed at a national level

Other vaccines that are likely to be added to the childhood programme over the next couple of years include a vaccine for the meningococcal B strain of the meningococcal bacteria that causes around 100 cases of meningitis annually in Scotland. There are also likely to be some changes to the current Men C and pertussis vaccines schedule including additional doses of these vaccines for adolescent's programmes at school

2.2 Monitoring Immunisation Uptake Rates

Immunisation uptake refers to the proportion of the eligible population who have received the recommended doses of the relevant vaccines. Monitoring the proportion of children vaccinated is a key measure of the performance of any immunisation programme. It is of public health concern when immunisation rates fall, as this increases the possibility of disease transmission and, hence, complications arising from outbreaks of infectious diseases.

In Scotland the target of the national immunisation programme is for 95% of children to complete courses of the following childhood immunisations by 24 months of age. These include diphtheria, tetanus, pertussis (whooping cough), polio, Haemophilus influenzae type b (Hib), Meningococcal group C (MenC) and Pneumococcal Conjugate Vaccine (PCV). An additional national target of 95% uptake of one dose of the Measles, Mumps and Rubella (MMR) vaccine by five years of age was introduced in 2006 to focus efforts on reducing the number of susceptible children entering primary school.

This report provides information on uptake of routine immunisations for children in NHSGG&C and Scotland by 12 months, 24 months and by 5 years of age. Uptake rates by calendar year at Scotland level, and by NHS Board are presented. This report includes data to 31 December 2011. The data are derived from the Scottish Immunisation and Recall System (SIRS), which covers all NHS boards in Scotland.

The Human Papilloma Virus (HPV) immunisation programme was introduced in September 2008 offering vaccination to all girls aged between 12 and 13 years at secondary school year S2. In addition, older girls up to the age of 18 years were also offered the vaccine through a one off catch up campaign between 1st September 2008 and 31st August 2011. Infection by a high risk type of HPV is necessary for the development of cervical cancer and over 99% of cervical cancers are caused by HPV infection. Two high risk types, HPV16 and HPV18, are responsible for over 70% of all cervical cancers in Europe and the vaccine given to all eligible girls prevent against these 2 type of high risk infections.

Statistics on Human Papilloma Virus (HPV) immunisation uptake are published by ISD annually in September and this report contains the final annual HPV immunisation uptake rate for the routine S2 school girls in school year 2010/11 and also the uptake rates for all girls in the catch up cohort who were resident in Scotland as at 31st August 2011 and were aged between 13 and 18 years in August 2008.

National statistics on uptake rates of the school leaving booster vaccine (the reinforcing doses of diphtheria, tetanus and polio given to 13 to 18 year olds) and non routine immunisations in Scotland are not currently available. ISD, however plan to publish uptake rates for the school leaving booster in autumn 2012.

2.3 Annual uptake rates by 12 months, 24 months and 5 years of age

Year ending 31st December 2011 in NHSGG&C, uptake rates by 12 months of age of primary course is comparable to the average uptake rates for Scotland. By 24months of age for primary courses of immunisation against diphtheria, tetanus, pertussis, polio, HIB (TTP/POL/HIB), MenC and PCV remain high and stable at around 96% – 98%. Uptake rates have exceeded the 95% target for the last decade. In 2011, uptake rates are:

- 97.8% of children had completed primary courses of immunisation against diphtheria, tetanus, pertussis, polio, HIB (TTP/POL/HIB)
- 95.9% completed the primary course of MenC
- 96.7% completed the primary course of PCV

The uptake of the 1st dose of MMR fell in the late 1990's from 94.6% in 1997 to a low of 86.8% in 2003. Uptake rates have since been increasing, have exceeded 90% since 2006, and are now approaching previous high levels. In 2011 uptake of 1 dose of MMR reached 93.5% by 24 months of age, however this has increased to 96.2% by the age of 5 years as shown on appendices 2 and 3. The fall and subsequent rise in uptake rates reflects the controversy about the MMR vaccine following a study published in the *Lancet* by Wakefield et al in 1998 that suggested that there was a link between MMR vaccine, bowel disease and autism. However subsequent scientific studies found no evidence to support the claim and the *Lancet* subsequently retracted their study due to on-going doubt of scientific validity.

Children are offered HIB/MenC and PCV booster vaccines at 12 – 13 months of age. Vaccines are introduced to the routine childhood immunisation schedule in September 2006. In 2011, uptake rates for the HIB/MenC booster rose to 94.7%. Uptake of the PCV booster by 24 months of age also increased to 93.6% in 2011. There continues to be further improvement in uptake rates in this vaccine from year on year following its introduction in 2006.

2.4 Uptake rate for HPV and other vaccines

The Uptake rate of HPV vaccine for S2 school girls for the routine cohort 1 year later for school year 2010/11 is shown in appendix 4 by NHS Boards and uptake rates for all girls in the catch up cohort between 1st September 2008 to 31st August 2011 who were resident in Scotland as at 31st August 2011 are shown in appendices 5, 6 and 7.

Appendix 4 shows that the uptake rate in NHSGGC for the routine programme is comparable and exceed the average for Scotland. This is very good news for the future generation of women who would be protected from the two most common high risk strains of HPV viruses that causes over 70% of cervical cancer in the UK.

The catch up programme was implemented for older girls to ensure that all girls between the ages of 13 and 18 years were offered the vaccine to protect them against these infections. As a proportion of these girls were no longer at school, this campaign targeted girls who left school through their GP Practices and community clinics. Girls still at school were offered vaccination through the school health team

Appendix 5 shows the overall uptake rates in NHSGGC and Scotland for all girls targeted in the campaign and the rates in NHSGGC is comparable to the national rates. Appendix 6 shows uptake rates for girls targeted at school and appendix 7 shows girls targeted in the community. As can be seen, there was a significant differences in the uptake rates between these two approaches and this confirms that the best way to target health intervention including immunisation for this age group is to offer them while they are still at school. This age group tend not to visit their GPs and they often do not respond to invitation to take up preventive health intervention.

As indicated previously, the national statistics for school leaving booster vaccination are not yet published by the ISD. However data are collected locally and the uptake rate for this vaccine is similar to the rates for the first dose of the HPV vaccine and well over 90%. ISD is planning to publish national data by the end of 2012.

National statistics for non-routine vaccine given to at-risk babies are also not available as the data are not collected by all Boards in a standard way. In NHSGGC, a local data collection system has been in use for both BCG and neonatal Hepatitis B vaccines for some years and the Public Health Protection Unit undertakes annual audits to ensure that all eligible children are offered these vaccines and uptake maximised. Local data show that the uptake rates in 2011 for BCG vaccine was over 92% and for Hepatitis B vaccine for at risk babies was 100%. The data collection system in place for NHSGGC is being adopted nationally and currently being rolled out in other parts of Scotland.

3.0 Staff Flu Vaccination Programme 2012/13

3.1 Background

Historically the uptake of flu vaccine among health care staff has been very low at less than 15%. During the 2009/10 H1N1 flu pandemic, the uptake rate improved to 50% but the following year it went back down. A two week additional vaccination clinic programme was run commencing 2nd week of January 2011 as well as the introduction of "Peer Immunisation" (departments/wards obtaining flu vaccine and colleagues clinical/medical vaccinating colleagues) being publicised. More innovative approaches to marketing/awareness (online and email) were also trialled through December and early January. The result was a doubling of the uptake to 23.4% with 605 "Peer Immunisations" (6.5% of total uptake)

The PHPU collaborated with Occupational Health again in March 2011 for the 2011/12 flu season to build on the January 2011's success. Planning initiated at the end of March 2011 with the formation of a cross-directorate programme planning team, including Occupational Health, PHPU, Facilities, Communications, Pharmacy, and Transport. Again, focus was placed on improving marketing/awareness and operational delivery. "Peer Immunisation" was further promoted, with a more robust opt-in/booking process put in place, hosted by Occupational Health.

In July 4th, 2011, the CMO letter issued on seasonal flu vaccination detailed two new, national uptake targets, one of which included a "50% uptake of vaccine in key clinical areas" for NHS staff. Final uptake for the 2011/2012 flu season in NHS GGC was reported as 32.8% (13101/40000) of all NHS staff, comprising 2550 Peer Immunisations (19.5%) of total vaccinations and 10182 (77.7%) via vaccination clinics, the remainder being via appointment with Occupational Health.

Planning for the 2012/2013 staff flu vaccination programme commenced in March 2012, again analysing what worked well in 2011/2012 and what could be done better for 2012/2013. One key success factor agreed was the cross-directorate programme planning team approach, membership of which was affirmed and members invited for the first planning meeting in March with subsequent monthly meetings.

The 2012/2013 seasonal flu CMO letter issued on July 9th again stated that "NHS Boards should at least aim to vaccinate around 50% of front line staff". A subsequent CEL (CEL 24 2012) issued in July called for Boards "to identify a senior clinician (nurse or a doctor) within each hospital in the NHS Board area who can champion the seasonal flu vaccine locally" as to date, uptake by healthcare staff in Scotland was "unacceptably low".

The Directorate of Public Health now leads the coordination and implementation of the annual staff flu vaccination programme with support from the Occupational Health Service and local Flu Champions.

3.2 Programme Objectives

(a) To identify and reflect key success factors of the 2011/2012 staff flu vaccination programme in the delivery strategy of the 2012/2013 programme, where possible, improving/re-engineering approach.

(b) To continue the stepped uptake rate improvement from December 2010 to March 2012, with aim to improve upon the 33% uptake rate achieved.

(c) To achieve or surpass the government-set uptake target for “front-line staff” (50%), and for all NHS GGC staff. The definition of “front line staff” and an associated “inclusion/exclusion” list has proven too difficult to implement in real terms, therefore, most, if not all Health Boards in Scotland have simply opened the programme to “all staff”, with uptake rate based on an “all staff” population denominator (38,000 for GGC).

(d) To push further the concept of “Peer Immunisation” in NHS GGC, where clinical (nursing/medical) staff can arrange to vaccinate colleagues in the same team/department/ward, with an aim to further improve uptake via this roll out approach. The ultimate aim is for Peer Immunisation to become the primary access route to flu vaccination for NHS GGC staff, with Occupational Health appointments available where preferred i.e. scale down and eventually phase out mass vaccination clinics across the Board.

(e) To work with identified “flu champions” across NHS GGC to promote flu vaccination in NHS healthcare staff, focussing on Peer Immunisation as the primary access route.

(f) To continue innovation in marketing & awareness approaches.

3.3 Scope

(a) All NHS GGC employees are included within the cohort of the staff flu vaccination programme = 38,000 staff.

(b) The programme will not be restricted or complicated by defining “front line staff only” for NHS employees.

(c) All NHS-independent contractors, including GPs, Dentists, Community Pharmacists and Optometrists are not within the scope of the staff flu vaccination programme. Contractors should consider vaccination of themselves and their employed staff, however, responsibility for this lies with employers, not with the Health Board.

(d) Staff employed by local government should likewise approach their respective employers and do not fall within the GGC staff programme. Special (private) arrangements may be made with NHS GGC Occupational Health, however, those staff will not fall within the core programme, nor do they form part of the 38,000 cohort.

3.4 Time Constraints

The flu season runs from 1st October to 31st March, however, the number of reported flu cases normally increases from the beginning of December, with the main, season peak around mid-January, therefore, achieving protection of staff (and vulnerable patients – immunised staff not a source of infection) through immunisation by end of November is desirable. To this end, the mass vaccination clinic schedule will run until mid-November and Peer Immunisation sessions should be encouraged to commence soon after 1st October and finish by December/early January at the very latest.

3.5 Vaccination Strategy

As per the 2011/2012 programme, there will be 4 modes of vaccination delivery to staff in NHS GGC:

(a) Peer Immunisation: a peer immunisation policy was agreed and implemented in 2011/2012, where any unit or team with clinical (nursing/medical) staff located in a CHP/Sector or Acute site may participate. PHPU will be coordinating the Peer programme on the operational aspects of opt-in/booking, vaccine distribution, PGD (Patient Group Direction) distribution & collection, as well as working closely with flu champions and Communications to promote the approach. Peer Immunisation will be promoted as the primary route to flu vaccination for NHS GGC staff in 2012/2013.

(b) Mass Vaccination Clinics: Mass vaccination clinic stations will be set up across 25 Acute and Community hospital sites over 4 weeks (first 2 weeks of October, and first 2 weeks of November) These sites represent over 30,000 of the 38,000 staff employed by NHS GGC, therefore, for a limited staffing resource (Occupational Health + Bank Nurses), this is the best way to target the majority of "front line staff". Clinics are of course open to Acute and CHP/Sector staff alike. At least one clinic site will be located in each site/sector, and at least 2 visits, with major sites seeing 3 or 4 visits across the 4 week schedule.

    Vaccine allocation and immuniser capacity for the 2012/2013 programme has been based on day-to-day site uptake analysis during the 2011/2012 programme as well as considering total site staff population size (figures provided by Workforce Planning), however, the key element to the plan is one of "responsiveness" and "scalability" on a day by day, hour by hour basis i.e. due to the unknown element of uptake from the 38,000 staff population, contingency processes have been built into the plan to respond to a lower or higher uptake of vaccine in order to help control vaccine distribution or prevent a shortfall.

(c) Roving Teams: As well as staffed vaccination stations, roving team pairs will be covering clinic site campuses on scheduled mass vaccination clinic days throughout the 4 week roll out, visiting wards and units to offer the vaccine to those staff that cannot make it to the vaccination clinic station on their site.

    The existence of these teams will not be publicised to staff before the main roll out programme to avoid staff opting to stay in their units awaiting roving teams and not attending the vaccination clinic. As "rovers" will involve 2 members of staff carrying around 30 vaccines per 1-2 hour round, clearly, there is limited capacity for these teams to vaccinate large numbers of staff. These roving teams are therefore seen as "mop up" units for those staff who genuinely cannot make the vaccination clinic on the day, and are not seen as an alternative service to the site vaccination clinic that day.

    "Flex" has been built into the Roving/Vaccination Clinic Station teams to allow staff to join either team on site, depending on uptake by either approach i.e. clinic station staff may become "rovers" if clinic attendance is quiet. Likewise, if the clinic is very busy, "rovers" may join the clinic station to help avoid queues.

(d) Appointment at the Occupational Health Dept: the vaccine is available to all staff by contacting the Occupational Health dept on 0141 201 5600 to arrange

an appointment at their nearest Occupational Health location at any time between mid-November 2012 and end of March 2013.

3.6 Marketing Strategy

A key aspect to the success of the programme, as has been established since December 2010, is marketing and awareness. Awareness of how to access the flu vaccine and of the risks of the virus and the safety of the vaccine in advance of the programme are essential to improving uptake. The following marketing strategy will be implemented:

(a) New Flu Info GGC micro-site: this is hosted on the www.nhsggc.org.uk external website under the PHPU portal to allow access to information from home as well as allowing hyper linking from external agencies e.g. the media. The site contains details on all access routes to flu vaccination, including Peer, Clinics, and Appointment, as well as informing staff of the risks of the flu virus and the safety of the vaccine.

(b) Internal Communications: Staffnet/Hot Topics/Core Brief/Staff Newsletter/magazine. Promotional articles will be published throughout September and October. Peer Immunisation will be promoted in the first instance at the beginning of September.

(c) "Flu Champions": As requested in the CEL letter issued in July, Boards have been asked "to identify senior clinicians (nurse or a doctor) within each hospital who can champion the seasonal flu vaccine locally". There are 38 such champions identified across various directorate in the NHS board area. PHPU already met with most of the Flu Champions to provide information on the importance of flu vaccination and to request assistance in the promotion of, primarily, Peer Immunisation.

(d) Email: an email has been sent to all Directors, Senior Managers and Flu Champions containing the Peer Immunisation weblink (Flu Info GGC microsite). An email will be sent to all GGC staff at the beginning of the last week of September to promote the mass vaccination clinics. A site-specific, reminder email will be sent to the relevant site the day before its scheduled mass vaccination clinic.

Appendix 1: Primary Immunisation Uptake Rates by 12 months of age, by NHS Board, year ending 31 December 2011

Table 1-Primary Immunisation Uptake Rates by 12 months of age, by NHS Board, year ending 31 December2011 NHS Board	Number inCohort1	%completed primary course by 12 months		
		DTP/Pol/Hib 3	MenC	PCV
Ayrshire & Arran	3,923	98.0	97.8	98.1
Borders	1,107	98.2	97.9	98.2
Dumfries & Galloway	1,489	98.3	97.7	97.9
Fife	4,238	96.7	96.4	96.9
Forth Valley	3,309	98.0	97.7	97.9
Grampian	6,244	97.3	96.4	97.0
Greater Glasgow& Clyde	13,896	97.1	96.7	97.3
Highland	3,213	96.0	95.6	96.0
Lanarkshire	6,454	97.5	97.6	98.0
Lothian	9,835	97.1	96.0	96.8
Orkney	208	86.1	85.1	86.1
Shetland	266	97.7	96.6	97.0
Tayside	4,316	97.9	97.1	97.6
Western Isles	239	97.9	97.5	97.5
NHS Board unknown2	23	..	..	..
Scotland	**58,760**	**97.3**	**96.7**	**97.2**

Source: SIRS, Feb 2012

Appendix 2: Primary and Booster Immunisation Uptake Rates by 24 months of age, by NHS Board, year ending 31 December 2011

Table 2-Primary and Booster Immunisation Uptake Rates by 24 months of age, by NHS Board, year ending 31December2011NHS Board	Number inCohort1	%completed primary course by 24 months				% completed booster course by 24 months	
		DTP/Pol/Hib3	MenC	PCV	MMR1	Hib/Men C	PCVB
Ayrshire & Arran	3,963	98.9	97.7	98.1	94.9	96.6	95.3
Borders	1,130	98.2	97.5	97.6	94.7	96.1	95.2
Dumfries & Galloway	1,540	98.8	97.5	97.9	96.3	97.1	95.8
Fife	4,294	98.2	96.2	96.6	92.5	94.9	92.8
Forth Valley	3,453	98.5	96.6	97.1	94.9	96.2	95.2
Grampian	6,494	97.6	95.1	96.0	94.9	94.9	94.3
Greater Glasgow & Clyde	13,756	97.8	95.9	96.7	93.5	94.7	93.6
Highland	3,238	97.3	95.0	95.5	92.0	93.8	92.1
Lanarkshire	6,631	98.5	97.4	97.9	94.9	96.4	96.2
Lothian	9,672	97.9	95.2	96.4	93.7	94.2	93.4
Orkney	203	99.0	97.5	95.6	91.6	91.6	91.6
Shetland	287	99.0	96.2	97.6	88.9	92.0	88.5
Tayside	4,348	98.4	95.8	96.4	93.7	94.5	93.7
Western Isles	230	99.1	98.3	98.3	97.0	96.5	96.1
NHS Board unknown2	28	..	..	..	..	..	..
Scotland	**59,267**	**98.1**	**96.1**	**96.8**	**94.0**	**95.1**	**94.1**

Source: SIRS, Feb 2012

Appendix 3: Table 5 MMR1 and Booster Immunisation Uptake Rates by 5 years of age, by NHS Board, year ending 31 December 2011

Table 3-MMR1 and Booster Immunisation Uptake Rates by 5 years of age, by NHS Board,year ending 31 December2011NHS Board	Number in Cohort1	%completed MMR1/booster course by 5 years				
		MMR1	Hib/MenC	PCVB	DTPPol	MMR2
Ayrshire & Arran	3,997	97.2	94.8	95.2	93.693.693.693.5	92.0
Borders	1,218	97.3	96.9	94.9	93.993.993.994.0	92.3
Dumfries & Galloway	1,571	97.6	96.2	95.4	94.394.394.394.2	93.6
Fife	4,074	96.4	94.8	92.9	88.788.788.788.7	87.3
Forth Valley	3,295	96.8	95.4	94.1	92.192.192.192.1	90.1
Grampian	5,990	96.4	89.9	90.1	94.594.594.594.5	92.9
Greater Glasgow& Clyde	13,033	96.2	93.1	93.9	89.789.789.789.6	87.9
Highland	3,192	95.6	91.3	90.2	90.390.390.390.3	88.3
Lanarkshire	6,656	96.5	93.7	95.7	92.592.592.592.5	90.2
Lothian	8,705	96.3	95.8	93.7	91.591.591.591.4	89.6
Orkney	235	95.7	83.8	78.7	91.191.191.190.6	88.5
Shetland	283	93.3	83.0	83.4	79.579.579.579.5	73.5
Tayside	4,132	96.0	94.5	93.9	91.091.091.090.9	89.0
Western Isles	291	95.9	92.4	90.0	92.492.492.492.4	89.7
NHS Board unknown2	29	..	..	..	....	..
Scotland	**56,701**	**96.4**	**93.7**	**93.4**	**91.591.591.591.4**	**89.6**
Source: SIRS, Feb 2012						

Appendix 4:

Final annual HPV immunisation uptake rates for the S2 routine cohort one year later, by NHS board; school year 2010/11[1]

NHS Board[2]	Number of girls in cohort[3]	Number 1st dose	% uptake of 1st dose	Number 2nd dose	% uptake of 2nd dose	Number 3rd dose	% uptake of 3rd dose
Ayrshire and Arran	2 070	1 943	93.9	1 925	93.0	1 898	91.7
Borders	673	623	92.6	615	91.4	610	90.6
Dumfries and Galloway	820	771	94.0	763	93.0	752	91.7
Fife	1 976	1 823	92.3	1 799	91.0	1 755	88.8
Forth Valley	1 735	1 627	93.8	1 612	92.9	1 570	90.5
Grampian	3 007	2 789	92.8	2 765	92.0	2 703	89.9
Greater Glasgow & Clyde[4,5]	6 619	6 202	93.7	6 150	92.9	6 047	91.4
Highland[5]	1 732	1 578	91.1	1 560	90.1	1 518	87.6
Lanarkshire[4]	3 386	3 150	93.0	3 124	92.3	3 026	89.4
Lothian	4 187	3 845	91.8	3 803	90.8	3 734	89.2
Orkney	106	93	87.7	93	87.7	93	87.7
Shetland	164	151	92.1	151	92.1	145	88.4
Tayside	2 278	2 127	93.4	2 105	92.4	2 070	90.9
Western Isles	133	116	87.2	116	87.2	110	82.7
Scotland[5]	**28 932**	**26 881**	**92.9**	**26 624**	**92.0**	**26 073**	**90.1**

Appendix 5:

HPV Immunisation Catch-up Programme in Scotland (01/09/08 to 31/08/11)

HPV immunisation uptake rates for all girls in the catch-up cohort, who were resident in Scotland as at 31 August 2011, by NHS Board of residence[1]

NHS Board of Residence	Number of girls in cohort[2]	Number 1st dose	% uptake of 1st dose	Number 2nd dose	% uptake of 2nd dose	Number 3rd dose	% uptake of 3rd dose
Ayrshire and Arran	10,123	7,906	78.1	7,627	75.3	7,098	70.1
Borders	2,776	2,268	81.7	2,183	78.6	2,077	74.8
Dumfries and Galloway	3,633	2,969	81.7	2,914	80.2	2,796	77.0
Fife	10,783	7,138	66.2	6,932	64.3	6,471	60.0
Forth Valley	8,917	6,709	75.2	6,490	72.8	6,110	68.5
Grampian	16,076	12,164	75.7	11,817	73.5	10,975	68.3
Greater Glasgow & Clyde[3]	36,747	27,129	73.8	25,984	70.7	24,066	65.5
Highland[3]	7,428	5,612	75.6	5,345	72.0	4,861	65.4
Lanarkshire	16,051	12,747	79.4	11,986	74.7	10,512	65.5
Lothian	23,655	16,196	68.5	15,629	66.1	14,424	61.0
Orkney[4]	595	409	68.7	387	65.0	326	54.8
Shetland	515	414	80.4	405	78.6	391	75.9
Tayside	11,910	8,653	72.7	8,278	69.5	7,637	64.1
Western Isles	570	403	70.7	382	67.0	340	59.6
Scotland[3]	**149,830**	**110,755**	**73.9**	**106,397**	**71.0**	**98,120**	**65.5**

Appendix 6:

HPV Immunisation Catch-up Programme in Scotland (01/09/08 to 31/08/11)

HPV immunisation uptake rates for girls in the catch-up cohort eligible for vaccination through the school-based catch-up programme, by NHS Board of residence[1]

NHS Board of Residence	Number of girls in cohort[2]	Number 1st dose	% uptake of 1st dose	Number 2nd dose	% uptake of 2nd dose	Number 3rd dose	% uptake of 3rd dose
Ayrshire and Arran	5,777	5,459	94.5	5,387	93.2	5,265	91.1
Borders	1,632	1,534	94.0	1,519	93.1	1,482	90.8
Dumfries and Galloway	2,314	2,150	92.9	2,134	92.2	2,090	90.3
Fife	6,094	5,511	90.4	5,435	89.2	5,196	85.3
Forth Valley	5,631	5,286	93.9	5,222	92.7	5,107	90.7
Grampian	9,593	8,999	93.8	8,909	92.9	8,680	90.5
Greater Glasgow & Clyde[3]	21,747	20,438	94.0	20,054	92.2	19,325	88.9
Highland[3]	4,881	4,438	90.9	4,345	89.0	4,128	84.6
Lanarkshire	10,199	9,455	92.7	9,167	89.9	8,437	82.7
Lothian	13,652	12,579	92.1	12,397	90.8	11,896	87.1
Orkney[4]	..	..	..	..	..	..	..
Shetland	357	310	86.8	307	86.0	298	83.5
Tayside	7,075	6,596	93.2	6,487	91.7	6,225	88.0
Western Isles	401	349	87.0	336	83.8	301	75.1
Scotland[3,4]	**89,386**	**83,134**	**93.0**	**81,729**	**91.4**	**78,459**	**87.8**

Appendix 7:

HPV Immunisation Catch-up Programme in Scotland (01/09/08 to 31/08/11)

HPV immunisation uptake rates for girls in the catch-up cohort eligible for vaccination through the out-of-school catch-up programme, by NHS Board of residence[1]

NHS Board of Residence	Number of girls in cohort[2]	Number 1st dose	% uptake of 1st dose	Number 2nd dose	% uptake of 2nd dose	Number 3rd dose	% uptake of 3rd dose
Ayrshire and Arran	4,346	2,447	56.3	2,240	51.5	1,833	42.2
Borders	1,144	734	64.2	664	58.0	595	52.0
Dumfries and Galloway	1,319	819	62.1	780	59.1	706	53.5
Fife	4,689	1,627	34.7	1,497	31.9	1,275	27.2
Forth Valley	3,286	1,423	43.3	1,268	38.6	1,003	30.5
Grampian	6,483	3,165	48.8	2,908	44.9	2,295	35.4
Greater Glasgow & Clyde[3]	15,000	6,691	44.6	5,930	39.5	4,741	31.6
Highland[3]	2,547	1,174	46.1	1,000	39.3	733	28.8
Lanarkshire	5,852	3,292	56.3	2,819	48.2	2,075	35.5
Lothian	10,003	3,617	36.2	3,232	32.3	2,528	25.3
Orkney[4]	..	..	..	..	..	..	..
Shetland	158	104	65.8	98	62.0	93	58.9
Tayside	4,835	2,057	42.5	1,791	37.0	1,412	29.2
Western Isles	169	54	32.0	46	27.2	39	23.1
Scotland[3,4]	**59,849**	**27,212**	**45.5**	**24,281**	**40.6**	**19,335**	**32.3**