

Report of the Director of Public Health :
**Major Development to Immunisation Programmes in Scotland –
Implications for NHSGGC**

1. Recommendations

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

- The significant development in immunisation programmes in Scotland and its implications for NHSGGC.
- The challenges of delivering the flu vaccine to all children age 2 to 16 years (206,940 children) over an 8 to 10 week period on an annual basis.
- The on-going planning and the key issues that are being addressed in NHSGGC to implement these programmes.

2. Introduction

Immunisation policy in the UK is determined by the UK Health Ministers and Devolved Administrations with advice from the independent expert advisory group, the Joint Committee on Vaccination and Immunisation (JVCI). Over the last few years, there have been a number of recommendations from the JVCI to extend the childhood, adolescent and adult immunisation programmes in the UK. In December 2012, the Scottish Government along with other UK Administrations announced that there would be major development to immunisations programmes in the UK starting from July 2013. In summary these include

- Adding Rotavirus vaccination to the universal childhood vaccination programme from July 2013
- Offering meningococcal C vaccine to adolescents with a concomitant decrease in the number of doses offered to infants from two to one. This also includes a catch up programme for 4/5 years for those young people entering higher education who would otherwise miss out on the new programme.
- Introducing Herpes Zoster (shingles) vaccine for all those aged 70 years, with a catch-up for 70-79 years. The routine programme will start in September 2013, but the catch up will be completed over a 4 to 5 year period (to be decided) starting from September 2013.
- Extending the seasonal flu immunisation programme to all children and young people aged 2 – 16 years.

These developments will have wide- ranging implications for the NHS Scotland and NHSGGC. In fact the number of people being offered vaccination each year will double in Scotland from approximately 1 million to approximately 2 million once these new programmes are fully implemented.

3. Summary Table and Time Scale for Introduction

Vaccine	Rotavirus	Shingles (HZ)	Meningococcal C	Flu
Timescale	1 st July 2013	1 st Sept 2013	August 2013	Pilot and partial implementation to start Oct 2013 with full implementation by Oct 2015
Cohort and dose schedule	All children born on and after 1 st May 2013. 2 doses given at 2 and 3 months of age	Those age 70 years on 1 st Sept 2013. 1 dose Catch up: From Sept 2013, all those aged 70 years From Sept 2014 to be decided but the plan is to give vaccine to all those 70-79 years over a period of 4/5 years depending on vaccine availability	Pupils in S3 1 dose Catch-up: 1 dose given to all those going to Higher Education for a limited period of 4/5 years	Pilot years are 2013 and 2014. From Oct 2013, 3/4 birth cohorts in Scotland to be offered vaccine. From Oct 2014, all children aged 2-5 and all primary school children. From Oct 2015, all children aged 2-16 years of age.
Proposed Delivery model	Primary Care as per other routine childhood vaccines – subject to GP contract agreement	Primary Care as per over 65 flu vaccine programme – subject to GP contract agreement.	Pupils in S3 - by school health teams as per HPV and school leaving DTP booster Catch-up: For Higher Education students – primary care subject to GP contract agreement	2–5 year olds: Primary Care subject to GP contract agreement. Primary and Secondary school pupils: by school health teams as per HPV and DTP booster

4. Rational for the programmes and expected benefits to public health

4.1 Rotavirus

Rotavirus is the commonest cause of gastroenteritis (infection of gut) in young children under the age of 5 years. Infection can lead to severe diarrhoea, vomiting and dehydration. An estimated 13,000 episodes of rotavirus-induced gastroenteritis occur each year in children less than 5 years in Scotland and approximately 1300 of these children are hospitalised. There are two rotavirus vaccines authorised by the European Medicines Agency. Both are highly effective at preventing rotavirus infection in infants. The vaccine to be used in Scotland is called Rotarix and is supplied as an oral suspension.

Rotavirus vaccination is also part of the routine infant immunisation programme in a number of other countries including Australia, Canada and the USA. In the USA, experiences to date suggest that rotavirus related admissions for young children have been cut by more than two thirds since rotavirus vaccination was introduced. If this is replicated in Scotland, it is expected that rotavirus related hospitalisation annually would be reduced by over 850 episodes in Scotland and over 200 episodes in NHS GGC. This is particularly important as most of the rotavirus infections occur in winter and early spring (January to March), at a time with maximum pressure for hospital beds

4.2 Meningococcal C (Men C)

Meningococcal disease is caused by the bacterium called meningococcus and is most commonly presents as either meningitis or septicaemia (blood poisoning) or a combination of both. There are 12 different groups of the bacterium identified but groups B and C historically were the most common in the UK.

Meningococcal disease can affect all age groups, but the rates of disease are highest in children under 5 years of age with a peak incidence in those under one year of age. There is a second peak in incidence in young people aged 15 to 19 years of age. Prior to the introduction of the Men C vaccination programme for infants, approximately 300 cases of meningococcal infections were diagnosed every year and about half of them were due to group C infection with a mortality rate of over 10%.

The Men C vaccination programme was first introduced into the UK routine immunisation programme in November 1999. Within a few years of its introduction, disease caused by Men C has fallen by over 95% and cases are now at an extremely low level in the UK. However studies in recent years show that vaccination in early childhood provides a relatively short term protective immune response and does not provide adequate protection for teenagers and young adults. In order to maintain low levels of disease and herd immunity, the JCVI recommended that further changes to the Men C vaccination schedule be made. The Committee recommended the introduction of an adolescent booster to be given at the same time as the teenage DTP booster to offer greater protection in teenagers and young adults.

4.3 Shingles (Herpes Zoster)

Shingles (HZ) is caused by the reactivation of a latent virus that causes chickenpox infection; therefore chickenpox (varicella) infection is a pre-requisite for the development of shingles. Primary chickenpox infection typically occurs during childhood and over 95% of children are infected by the time they become adolescents. Following chickenpox infection, the virus enters the sensory nerves where a permanent latent infection is established. It is not fully known what causes the latent virus to subsequently be reactivated, leading to shingles, but this is usually associated with conditions that depress the immune system either due to disease and/or treatment. Increasing incidence with age is thought to be associated with age related waning of immunity.

Shingles can occur at any age, with the highest incidence seen in older people and around 1 in 4 adults will experience shingles in their lifetime. Approximately 5,000 cases of shingles occur in older people aged 70 years and above in Scotland every year. The severity of shingles generally increases with age and lead to persistent pain and is termed Post Herpetic Neuralgia (PHN). Other complications seen include muscle weakness in the face and involvements of the eye due to disease affecting the nerves in this area.

Shingles vaccine will be offered to all 70 year olds in the UK from the autumn this year with a catch up programme for those between the ages of 71 to 79 years. Due to vaccine availability, the catch up programme may take up to 5 to 9 years to complete. The vaccine can reduce the incidence of shingles by approximately 40% in people aged 70 years and older and even those vaccinated people that developed shingles, the vaccine significantly reduced their burden of illness by 55%.

4.4 Influenza (Flu)

Flu vaccine is routinely offered to people who are either at risk of severe complications if they are infected and those who are most likely to come into contact with vulnerable people at risk of infection and complications. Annual vaccination is usually carried out between October and January before the onset of the flu season and target people suffering from various chronic diseases, all those aged 65 and over, pregnant women and some health and social care workers.

The uptake of the vaccine is variable ranging from over 75% among those aged 65 years and over to less than 40% among those in some of the at risk groups.

Various studies undertaken during and immediately after the 2009 swine flu pandemic showed that children and adolescents are at high risk of being infected by flu and they also act as a reservoir of infection to their family and friends.

Following detailed analysis of the epidemiology of infection and costs and benefits of vaccinating children against flu, the JCVI recommended in July 2012 that the seasonal flu vaccination programme should be extended to all children aged 2 to 16 years. JCVI recognised that implementation of this major programme would be challenging and advised that its introduction would require very careful planning and handling. As a result, all the UK administrations decided to implement this programme in a phased manner beginning in the autumn 2013 culminating in full roll-out of the child flu programme to all 2 to 16 year olds possibly during the 2015/16 flu season.

The vaccine recommended to be used in children is a live attenuated vaccine delivered by intra-nasal spray. This vaccine was introduced in the USA in their routine flu immunisation programme over 5 years ago with a good efficacy and safety record. Flu vaccination of children has direct benefits to children themselves by providing immunity against the infection but there are also indirect benefits to their family members and society at large. The expected total benefits in both mortality and morbidity are shown in the table below.

Expected benefits of the intranasal flu vaccination programme in children aged 2 – 16 years in Scotland based on modelling by the London School of Hygiene & Tropical Medicine and the Health Protection Agency, England

	Without any flu vaccination programme	With the current programme	With the extended programme (including all 2– 16 year olds)	Number prevented
Expected number of GP consultation for flu related illness	100,000	75,000	42,000	33,000
Estimated number of hospitalisation due to flu related illness	5,000	2,800	1,700	1,100
Estimated deaths due to flu related illness	900	500	300	200

5. Implementation in NHSGGC

Nationally a number of working groups have been set up to plan and implement these new programmes in Scotland. A number of staff from NHSGGC representing public health, school health and CHP management attend these national groups.

In NHSGGC, planning to implement these programmes is coordinated by the Directorate of public health with support from colleagues in CHPs and other services. A number of issues and work streams have been identified and these are currently being addressed both locally and nationally with colleagues both within the NHS and Local Authorities.

5.1 GP Practice capacity

The current planning assumption is that Rotavirus for infants, flu vaccine for 2-5 year olds, shingles vaccine for adults and the men C vaccine for Higher Education students would be delivered through primary care.

There are on-going national negotiation between the Scottish Government (SG) and the SGPC of the BMA to agree terms and conditions for delivering these vaccines. This is going to significantly increase the workload for GP practices particularly during the months of October to December every year and they need to increase capacity to cope with this increased demand.

5.2 School Nursing Capacity

Currently school nurses provide HPV vaccine to all girls in S2 (approximately 7000 girls) and DTP (Diphtheria, Tetanus and Polio) booster to all boys and girls in S3 (approximately 14000 pupils). These are delivered in 123 secondary schools in NHSGGC across the Health Board area.

With the inclusion of the new programmes and once fully implemented, the additional workload would involve adding men C vaccine to the DTP booster to all S3 pupils. However the most significant challenge would be to deliver the flu vaccines to all pupils in 350 primary schools and 123 secondary schools (approx. 157,000 pupils) over an 8-10 week period on an annual basis between the beginnings of October to mid-December. Delivery of the flu programme will require additional capacity in nursing resources over a period of 3 months (with training and delivery). Working closely with all the Local Authority Education Departments, detailed planning is under way to deliver these programmes at

school with minimum disruption to the school routine.

The current planning assumption is that the nursing capacity need to be increased by recruiting and training additional bank staff for these 3 months of the year and work is on-going with the nurse bank manager on how best to recruit these additional nurses on an annual basis.

5.3 Pharmacy capacity for storage and distribution of vaccines to schools and Primary Care

Currently all vaccines used in the routine vaccination programmes are stored centrally at the Pharmacy Distribution Centre (PDC) at Govan and staff based at the PDC are responsible for storage and distribution of these vaccines to the whole Board area and to ensure that they are transported and kept within the desired temperature range of 2 to 8° C to maintain the cold chain.

The PDC has no additional storage capacity for the new vaccines and public health staffs are currently working closely with staffs from the PPSU and Facilities Directorate to explore both short term and long term solutions to the limited storage capacity at the PDC and how best to address them. Increasing storage capacity and distribution to and collections of unused vaccines from 473 schools in the Board area would have additional resource implications.

5.4 Child Health Admin capacity

The Child Health team, based at the Templeton Business Centre and working closely with the national information systems currently coordinate the identification and call and recall of those eligible for various vaccines in the national programmes. In addition the team is responsible for data entry into the national immunisation information system following immunisation so that uptake can be monitored locally and compared nationally for performance management purposes. For school based programmes - the team also provides additional admin support to the school health teams in facilitating and arranging immunisation sessions at schools. This central admin support is vital for successful running of these school based programmes.

Currently the team is at 100% capacity and for them to provide on-going and enhanced support to the school health teams for these new programmes would require additional investment. On-going planning and discussions are being held between Public Health and the screening manager to estimate this resource and a plan with indicative costs have been submitted by the screening manager to Public Health

5.5 Other areas with on-going planning and resource implications include:

- Transport costs
- Clinical waste collection costs
- Sundries
- Coordination and management of the programme
- Training and education of primary care, school health and bank nursing staffs

6. Costs for the Programme

6.1 Vaccine cost

The Scottish Government (SG) has intimated that costs for all new vaccines will be funded and procured centrally by the government for the new programmes. The SG further intimated that all other costs related to the delivery of the programmes including remuneration of GP practices would need to be funded by the Boards from their existing

general allocations.

6.2 Vaccine delivery costs

The detailed delivery costs for these programmes in NHSGGC are currently being worked on and finalised by the various service delivery planning groups set up locally.