

HEALTH & WELLBEING BOARD

Subject Heading:

Health Protection Forum Annual Report 2016

Board Lead:

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Public Health Service

The subject matter of this report deals with the following themes of the Health and Wellbeing Strategy

- ☒ Theme 1: Primary prevention to promote and protect the health of the community and reduce health inequalities
- ☒ Theme 2: Working together to identify those at risk and intervene early to improve outcomes and reduce demand on more expensive services later on
- ☒ Theme 3: Provide the right health and social care/advice in the right place at the right time
- ☒ Theme 4: Quality of services and user experience

SUMMARY

The purpose of this report is to discharge the Director of Public Health's statutory duty to provide assurance and information on arrangements to protect the health of the population of Havering. It presents an overview of the key health protection functions of the Council and its partners and what actions are being taken.

The 2015 Health Protection report focused on the statutory changes that had taken place following the Health and Social Care Act 2012 and the roles and responsibilities of the agencies involved. This year's report provides a spotlight on seasonal influenza, including: an overview of the causes (aetiology) and spread (epidemiology) of the disease; an in-depth review of immunisation programmes for seasonal influenza; and actions being taken locally and nationally to improve uptake of flu vaccination.

Havering's Health Protection Forum provides surveillance of the respective components of the health protection system and challenges the system when risks are identified. The Forum meets quarterly and has received reports on various health protection topics over the past year, including: communication protocols for outbreaks/incidents; air quality; antenatal and newborn

screening programmes; antimicrobial resistance; infection control in acute hospital settings; and emergency planning.

Overall, health protection in Havering is effective and the established processes are performing as expected. There have been no major outbreaks or incidents outside of what would normally be expected when health protection processes are working well.

The main issues/highlights are:

- Uptake of seasonal flu vaccinations in Havering across all age groups in the 2015-16 flu season was broadly similar to the uptake for London, but worse than the overall uptake for England.
- Under 12 month, under 2 years and under 5 year old routine vaccinations are all either surpassing, close to the 95% uptake target or on a par with England.
- Although there is no national set target for Pertussis (whooping cough) vaccination for pregnant women, Havering is performing better than both London and England for uptake (latest available data for March 2016 was 70.1% compared to 49.8% in London and 60.7% in England).
- HIV infection in Havering is lowest out of all the London boroughs, but many cases are diagnosed late.
- The incidence of TB in Havering remains low at 10.9 per 100,000 and does not constitute a priority region. PHE have commenced a new universal BCG vaccination offer to all newborn babies, but until the global shortage of vaccine is rectified, available vaccines are still being prioritised to at risk individuals or priority regions with high incidence.
- There were 4 MRSA cases and 38 cases of *C.difficile* in BHRUT hospitals in 2015-16.

Key actions taken were:

- Havering Public Health Service maintains surveillance of the health protection system.
- PHE rolled out a national winter campaign, including Winter Readiness Packs for Care Homes and for Schools, together with the flu vaccination programme.
- NHSE recommissioned school vaccination service and require providers of the school childhood flu vaccinations programme to attain 100% of eligible children to be offered the immunisation, with a minimum 40% uptake rate to be achieved.
- NHSE have developed an immunisations improvement action plan in partnership with Havering CCG and the Council.
- GP practices have been reminded by NHSE to undertake call and recall for all immunisations cohorts (seasonal flu as well as routine vaccinations).
- NHSE have confirmed that vaccination for meningitis will continue to be provided as part of routine adolescent schools programme (school year 9 or 10), and will run a catch-up campaign for those students in years 10-12, and continue to offer immunisations to first time university entrants up to age 25.
- More people are being tested for HIV in A&E and through antenatal screening.
- Breast and cervical screening programmes in Havering are operating within normal parameters, and within 5% of the target uptake rate (75.1%) for cervical screening. However, Havering's bowel cancer screening programme has experienced some significant challenges. NHSE, as the commissioners of the bowel screening programme, made a decision to interrupt the screening programme at Queens to enable quality standards to be improved, but ensured all patients who were due for a screening test were called within nationally agreed timeframes.

- The Environmental Protection Team, plus partners from Smarter Travel and Public Health, have developed a bespoke Air Quality video, featuring Miles the Mole, which will be shown in primary schools throughout Havering. A 'stills' version is being developed for use in GP surgeries to advise patients on the impact of air quality on their health, what to do if they suffer from Asthma or COPD, and what they can do to reduce their exposure to air pollutants.
- LBH have commissioned a specialist Stop Smoking Service for pregnant women in Havering. Referrals can be made directly to the service by the BHRUT maternity team/midwives at any time during pregnancy, and will be offered by the maternity service at every contact, commencing from the time of booking for the first antenatal appointment.
- Following extensive and unprecedented flooding in the borough on 23rd June this year, the emergency planning team put on a special event to give information and advice to local residents on how to prepare for, and what to do in the event of flood. The emergency planners also highlighted to the CCG the need for GPs to have appropriate Business Continuity Plans.
- BHRUT have an Infection Prevention and Control (IPC) Annual Improvement Plan 2016-17 in place, which includes actions to reinforce standard infection control precautions to minimise the risk of hospital-acquired infections. The improvement plan is being implemented via a corporate strategy and monitored under the corporate umbrella by the Deputy Chief Nurse for Harm Free Care.

RECOMMENDATIONS

To note the contents of the report. No further action required.

REPORT DETAIL

Please see attached report.

IMPLICATIONS AND RISKS

Financial implications and risks: None

Legal implications and risks: None

Human Resources implications and risks: None

Equalities implications and risks: None

1.0 Background

1.1 Purpose

The purpose of this report is to provide assurance and information on arrangements to protect the health of the population of Havering. Following on from last year's report, which gave an overview of the new roles and responsibilities for health protection in the wake of the Health and Social Care Act, each year we will be focussing on one health protection topic in detail. This year's report provides an in-depth look at seasonal influenza – its causes (aetiology) and spread (epidemiology) and actions being taken by the council and its partners to minimise the risk of pandemic flu (including avian flu) (Appendix A). This report highlights key issues relating to health protection in Havering, including: routine childhood and adult immunisations as well as those specifically for at risk individuals; cancer and other screening programmes; infectious diseases; environmental health, including air quality and tobacco control; and health aspects of emergency planning. Where appropriate, the report also outlines what actions are being taken to strengthen local arrangements.

1.2 Havering Health Protection Forum

Havering's Health Protection Forum provides surveillance of the respective components of the local health protection system and challenges the system when risks are identified. The organisations represented on the Forum include:

- London Borough of Havering (Environmental Health; Public Health)
- Public Health England (PHE)
- NHS England (NHSE) (Cancer and non-cancer screening programmes; Immunisations)
- Havering Clinical Commissioning Group (HCCG)
- Havering Borough Resilience Forum (BRF)
- North East London Foundation Trust (NELFT)
- Barking, Havering and Redbridge University Hospitals Trust (BHRUT)

As a multi-agency partnership, the Forum receives quarterly updates from each of the partner agencies responsible for either commissioning or delivery of health protection functions.

Surveillance of a set of key indicators - immunisations, screening and infections (MRSA, *C.Difficile*, and gastrointestinal infections) – are monitored via a Dashboard each quarter. In addition, an in-depth report is given on key health topics, and has included in the last year: an annual report of screening programmes (antenatal and newborn screening); infection prevention and control at BHRUT; Air Quality; PHE communications response to incidents/outbreaks; and emergency planning.

2.0 Health Protection Main Topics of Focus

Overall, health protection processes in Havering are performing as expected. There have been no major outbreaks or incidents outside of what would normally be expected when health protection processes are working well. The topics listed below represent the areas of most interest and/or concern to the Health Protection Forum and what is being done about these issues.

2.1 Immunisations

2.1.1 *Spotlight on Seasonal Influenza*

Influenza, or 'flu', occurs every year, with most cases during the winter months. A vaccination is available each season to protect against the three (trivalent) or four (quadrivalent) most common strains circulating that year. A quadrivalent vaccine has been authorised for use in the UK since 2013, and the Joint Committee on Vaccine and Immunisation (JCVI) has advised that, all things being equal, the quadrivalent vaccine is preferable to the trivalent vaccine¹. NHS England (NHSE) commission a comprehensive programme of flu vaccinations for children aged 2,3, and 4 years old via their GP surgery, for children in school years 1-6 in Havering at school, for all adults aged 65 years or over via their GP or pharmacist, and for anyone under the age of 65 at clinical risk via their GP or pharmacist.

In the 2015/16 season, uptake of the flu vaccination in Havering was broadly similar to the uptake for London, but worse than the overall uptake for England (See Table 1 in Appendix A). Nationally, for all groups eligible for free vaccinations, uptake of flu vaccination was much lower than the ambition. NHSE have an action plan in place to improve performance in the 2016-17 season, supported by national campaigns to increase patient's response to taking up the vaccination. In addition, provision of school-aged vaccination has been recommissioned this year, with a new provider, Vaccination UK, now in place for Havering.

Cases of avian influenza (bird flu) are very rare, and the best way to prevent infection with avian Influenza A viruses is to avoid sources of exposure. PHE state that risks to public health are very low and avian flu does not pose a food safety risk for UK consumers. In order to prevent avian flu in the UK, on 6th December 2016, the Government Chief Vet declared a Prevention Zone introducing enhanced biosecurity requirements for poultry and captive birds, helping protect them from a strain of avian flu circulating in mainland Europe. This includes a ban on gatherings of poultry across the UK and issuing of advice to both commercial and domestic keepers of poultry on keeping them housed, separated from wild birds, and good biosecurity processes.

Please refer to Appendix A 'Spotlight on Flu' for a more detailed analysis of seasonal flu.

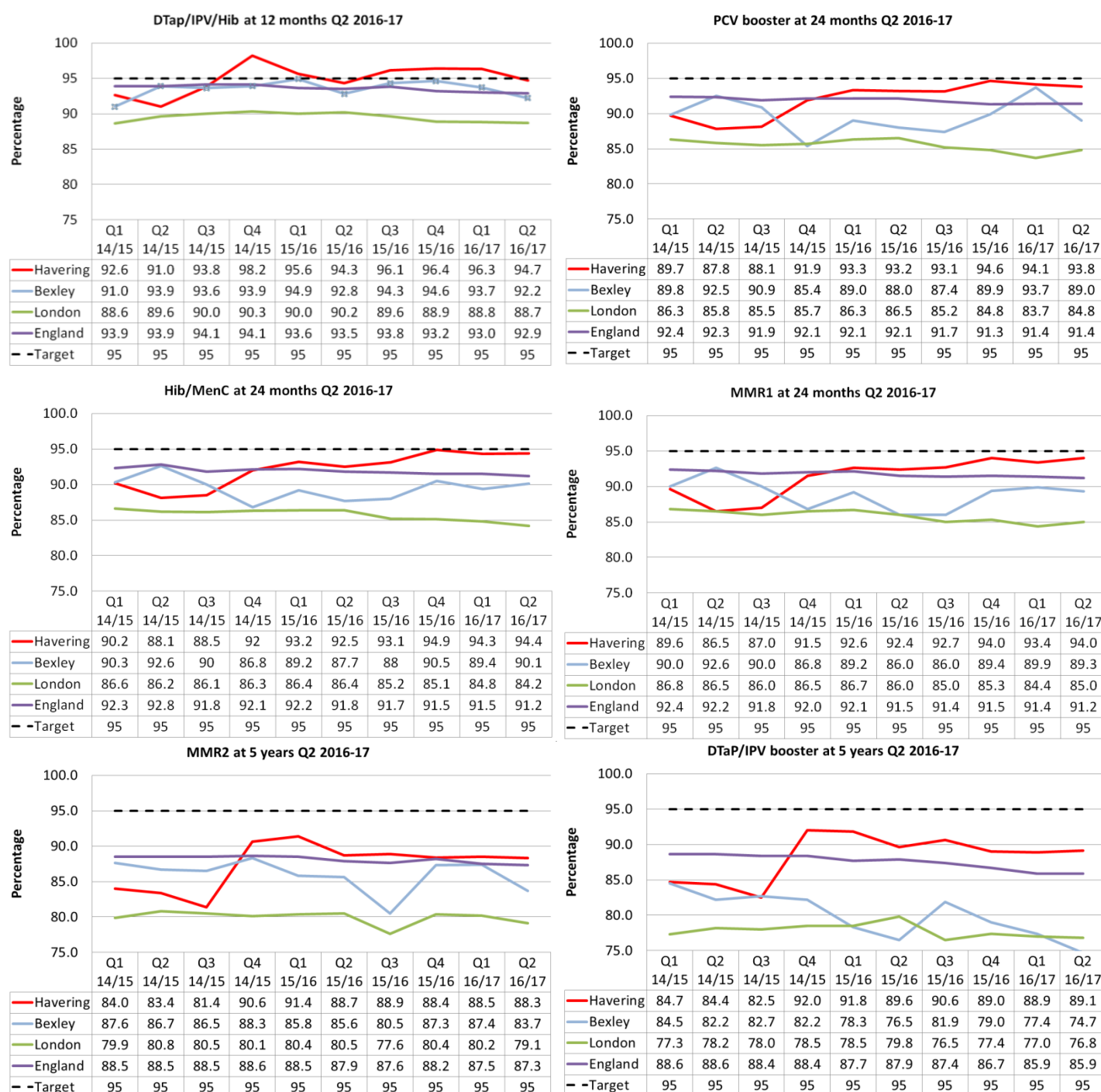
2.1.2 *Routine Childhood Immunisations*

NHS England commission the childhood immunisation programme, which sets out to provide protection against serious preventable infections². Vaccinations are given locally by GPs, practice nurses, local immunisations teams, and pharmacists (flu only). Information about the delivery of the immunisation programme is collated by PHE and the DPH receives regular reports. The HPF receives a quarterly report on vaccination uptake and interrogates the data, posing questions back to both commissioners and providers where relevant. (Appendix B outlines the full vaccination schedule, dated summer 2016³).

Over the past year, uptake of routine childhood immunisations has remained on a par with or above the England and London uptake levels, and above or close to the target of 95% uptake (Fig. 1). Where the uptake falls short of the 95% target, such as for MMR2 uptake by 5 years of age, Havering is still performing better than London and England. NHSE has developed an immunisations action plan jointly with the Council and Havering CCG to take action to improve immunisation uptake.

Human Papilloma virus (HPV) vaccine is offered to girls aged 12-13 years. The vaccine protects against cervical cancer. Whilst Havering is below the 90% target for uptake (currently at 86.3% for 2014/15), performance is better than London. Havering increased uptake in 2014/15 by 1.5% compared to 2013/14.

Figure 1. Childhood Immunisation Uptake by Quarter During Period Q1 2014/15 to Q2 2016/17 According to COVER Data



Notable actions being taken by NHSE include:

- MenACWY (meningitis) vaccine will continue to be provided as part of routine adolescent schools programme (school year 9 or 10). NHSE will run a catch up campaign for years 10-12, and continue to offer immunisations to first time university entrants up to age 25

- Ensuring MMR immunisation, through new patient GP registrations, as well as NHSE's local work with boroughs to implement plans to improve uptake
- Visits to GP practices by NHSE immunisations leads to support practices:
 - in ensuring they have processes in place to undertake effective call and recall processes for children who require immunisation;
 - ensure practices are using appropriate Read codes for immunisation data entry.
 - promote access to IT support for implementing immunisations reports;
 - ensure failsafe systems are in place
- NHSE will develop a good practice guide and distribute to GP practices in London

2.1.3 Routine Adult Immunisations

Vaccinations for adults are given routinely to the following groups:

- Pertussis (whooping cough) vaccination to pregnant women between 20 and 38 weeks of pregnancy
- Flu vaccinations to all adults aged 65 and over, and those aged between 6 months and 65 years identified as being clinically at risk. This includes, for example, those people with a long term condition such as chronic renal disease, heart, respiratory, neurological or liver disease; diabetes, or immunosuppression, such as those undergoing chemotherapy treatment. Pregnant women are also routinely offered the flu vaccination as they are identified as at clinically higher risk of complications from flu.
- Pneumococcal vaccination to all adults at age 65 years
- Shingles (Zostavax) for adults aged 70 or 78

Highlights are:

- Although there is no national set target for Pertussis vaccination, Havering is performing better than both London and England for uptake (latest available data for March 2016 was 70.1% compared to 49.8% in London and 60.7% in England).
- Shingles vaccination is given to two age cohorts – those aged 70 and 78 years to reduce the incidence and severity of shingles. There is also a 'catch-up' programme for those aged 71, 72, 73 and 79 (as at 1 Sept 16). . Havering has increased uptake in 2014/15 compared to 2013/14 by 4.1% in the 70 year old cohort, 3.8% in the 78 year old cohort and 1.8% in the 79 year old cohort.

2.1.4 Protecting those 'At Risk'

The primary aim of vaccination is to protect the individual who receives the vaccine. Vaccinated individuals are also less likely to be a source of infection to others. This reduces the risk of unvaccinated individuals being exposed to infection. This means that individuals who cannot be vaccinated (such as those too young to be vaccinated, or undergoing chemotherapy, for example) will still benefit from the routine vaccination programme. This concept is called population (or 'herd') immunity⁴. However, herd immunity only works if sufficient numbers of people are vaccinated.

When vaccine coverage is high enough to induce high levels of population immunity, infections may even be eliminated from the country, e.g. diphtheria. But if high vaccination coverage were not maintained, it would be possible for the disease to return. Vaccination against smallpox enabled the infection to be declared eradicated from the world in 1980. The World Health Organization (WHO) is currently working towards the global eradication of poliomyelitis.

Some medical conditions also increase the risk of complications from infectious diseases - children and adults with such underlying health conditions should be immunised as a matter of priority⁵. These include people with diabetes, chronic kidney, heart, respiratory, liver, lung or neurological disease, and those with dysfunctional or no spleen.. These groups may also require additional vaccinations or additional doses of vaccines to provide adequate protection. Other groups may be classed as 'at risk' due to their family circumstances or lifestyle, or because of the job they do, including frontline healthcare workers, streetcare operatives, cleaners in healthcare settings, police or firefighters. Those working in these types of occupations should be vaccinated against hepatitis B.

Key actions currently being taken by NHSE for 'at risk' groups include:

- NHSE is supporting the PHE pilot of HPV vaccination programmes for men who have sex with men (MSM). Up to 40,000 vaccines will be offered to MSM and the outcomes of this pilot will be used to inform future commissioning decisions by NHSE
- Promoting the uptake of seasonal flu vaccination for frontline health and social care workers, those aged over 65 years and those aged under 65 with an underlying health condition

2.2 Screening

Population screening programmes identify apparently healthy people who may be at increased risk of a disease or condition, enabling earlier treatment and better informed decisions. The UK National Screening Committee (UK NSC) oversees screening policy in all four nations, and works with the different implementation bodies to support delivery. The NHS runs a comprehensive screening programme for a range of adult cancers, and adult non-cancer conditions, and antenatal and newborn screening (Appendix C outlines the full list of screening programmes). The Health Protection Forum receives a report from NHS England on all cancer and non-cancer screening programmes. Non-cancer screening programmes include antenatal, newborn, Abdominal Aortic Aneurism (AAA) and Diabetic Eye Screening Programme (DESP).

2.2.1 Cancer Screening Programmes

Breast, bowel and cervical cancer screening is delivered by the NHS and co-ordinated by the national office of the NHS Cancer Screening Programme, part of Public Health England (PHE)⁶. People who are eligible for screening for breast, bowel and cervical cancer receive routine invitations. Every aspect of screening is assessed against quality programme standards. Staff at regional Quality Assurance Reference Centres work with screening services to ensure the national screening standards are met, including undertaking quality assurance visits.

Prostate cancer screening is not part of the national cancer screening programme, as there is currently no reliable screening test for prostate cancer. However, the Prostate Cancer Risk Management Programme has been set up to ensure that men who are concerned about the risk of prostate cancer receive clear and balanced information about the advantages and disadvantages of the PSA test and treatment for prostate cancer. This will help men to decide whether they want to have the test⁷.

Breast and cervical screening programmes in Havering are operating within normal parameters, and within 5% of the target uptake rate (75.1%) for cervical screening. Havering's bowel cancer screening programme experienced some significant challenges during 2016. NHSE, as the commissioners of the bowel screening programme, made a decision to interrupt the screening programme at Queens in order to focus on key actions to be taken.. . Although the local

programme was interrupted, Havering's eligible population have still been called for their screen within the nationally set timeframes.

The National Screening Committee (NSC) has recommended the introduction of Faecal Immunochemical Testing (FIT) testing to replace the current Faecal Occult Blood Test (FOBT) used in bowel screening. The main reasons given by the NSC for its introduction are:

- FIT is subject to less analytical interference and can be measured more reliably using an automated analyser.
- FIT is sensitive to much lower concentrations of blood than FOBT and therefore can detect cancers more reliably and at an earlier stage. The increased sensitivity enables FIT to detect more pre-cancer lesions (advanced adenomas)
- FIT requires a single faecal sample and is more acceptable to invited subjects which markedly increases participation rates.
- FIT is a cost effective alternative to FOBT

An announcement was made by the Minister for Public Health on 6 June 2016 confirming the roll-out of the new test. NHSE will be working with PHE and other relevant agencies during 17/18 to develop implementation plans.

2.2.2 Ante-natal and Newborn Screening and adult non-cancer screening

The ante-natal and newborn screening programme aims to identify those at risk of particular health problems. Ante-natal and newborn screening programme relies on a range of organisations and health professionals to deliver the full programme and all agencies, from sample takers, to laboratory testing, to notification of results must meet nationally agreed standards.

The antenatal and newborn screening programme includes testing for:

- HIV
- Hepatitis B
- Down's Syndrome
- Antenatal Sickle Cell and Thalassaemia
- Newborn hearing
- Newborn and infant physical examination
- Newborn blood spot

Screening for Abdominal Aortic Aneurism (AAA) and Diabetic Retinopathy are specifically targeted to people who may be at higher risk of such conditions. All people aged 12 years and above who have been diagnosed with Type 1 or Type 2 Diabetes are eligible for diabetic retinopathy screening, whilst all men aged 65 years and over are eligible for AAA screening.

Available data show that screening rates for AAA, retinopathy, newborn hearing, newborn blood spot and antenatal HIV meet the required quality standards and targets and in many cases surpass the targets.

Key actions being taken by NHSE in respect of all screening programmes include:

- Primary HPV Screening will be introduced into the NHS Cervical Screening Programme during 2017/18, with full roll-out by April 2019, following an announcement by the Minister for Public Health on 4th July 2016.
- NHSE will be working with PHE and Sustainability Transformation Plan (STP) teams during 2017/18 to develop implementation plans and to scope and procure the future footprint of cytology laboratory services in London.

2.3 Infectious Diseases

Surveillance and response systems are in place to ensure that the infectious diseases of most concern are monitored and appropriate actions taken. Under the Health Protection Regulations 2010, medically qualified practitioners are required by law to report a range of infectious diseases to the “proper officer”, which for Havering is Public Health England (PHE) (Appendix D gives the full list of notifiable diseases). Environmental Health Officers also report incidents to PHE, including food poisoning, water or airborne and environmental hazards.

PHE monitor and investigate outbreaks of infection, and provide advice on the control and prevention of infections. PHE provides a weekly report to Directors of Public Health (DsPH) on cases of infectious diseases, which supports the discharge of the surveillance function of DsPH. The DPH and team maintain a surveillance of such reports and provide advice, challenge and advocacy appropriately.

During the period of this report, the notifications and response mechanism is working well, as illustrated by the PHE response to finding legionella as part of routine testing at a swimming pool local school – see below for further detail.

This report contains a description below of the infections that are of greatest concern:

2.3.1 HIV

The latest prevalence rate of diagnosed HIV in Havering is 2.09 per 1,000 (data to the end of 2015)⁸. This is the lowest rate out of all the London Boroughs, the highest being Lambeth (14.6 per 1,000). In Havering, the more important issue is late diagnosis, with 37.5% of new cases of HIV diagnosed late in the period 2013-2015⁹. This is higher than London average (33.5%) and 19th highest of the 31 London boroughs; however this is a significant improvement from 2011 data when 50% of new cases of HIV were diagnosed late¹⁰.

Late diagnosis of HIV infection is associated with increased morbidity and mortality, increased costs to healthcare services and a reduced response to anti-retroviral treatment. An earlier diagnosis can decrease onward transmission of HIV as an individual’s knowledge of their HIV status has also been found to reduce their risk behaviour and it is therefore important to continue to promote acceptability of testing for HIV. Local sexual health services are recommended to focus on raising awareness of early testing of HIV particularly for at risk heterosexual groups.

The antenatal and newborn screening programme makes a vital contribution to identifying women with HIV who are unaware that they were infected. National uptake of antenatal screening for hepatitis B, HIV, syphilis and rubella susceptibility ranged between 97.54% and 97.79% in 2013, with less than 0.16% positivity rate for new diagnoses in these conditions¹¹. If identified as HIV positive during pregnancy, then interventions can reduce the risk of a mother passing on HIV to her baby from 25% (1 in 4) to less than 1% (1 in 100), as well as protecting the mother’s own health¹².

2.3.2 Tuberculosis (TB)

Havering continues to have very low rates of TB (10.9 per 100,000 compared with 41.9 per 100,000 for London)¹³. The local TB service continues to treat individuals and trace close contacts of infected individuals to assess whether treatment is required. At present, NICE recommends vaccinating newborn babies who are born in an area of high TB incidence, have one or more parent or grandparent born in a high-incidence country, or have a family history of TB in the last 5 years¹⁴. However, the London Immunisations Board endorsed a universal (100%) offer of BCG

vaccine to all babies up to the age of one year across London, including areas where prevalence is less than 40/100,000. This offer is commissioned to be given in all maternity units in London with a community offer for those parents who missed out on the vaccine in maternity hospitals or who have recently moved into London.

Due to the global shortage of BCG vaccine, the rollout of the BCG Universal programme has only recently commenced. However, until the shortage is fully rectified, there continues to be prioritisation of available vaccine in some areas to babies born in priority regions where incidence is >40 per 100,000 population, or in households where a parent comes from a country with a high incidence rate of TB. The incidence of TB in Havering is 10.9 per 100,000 and therefore does not constitute a priority region.

A new pathway for the universal delivery of BCG vaccination was commenced on 1st October 2016, with the following elements:

- The pathway affects babies **born on the 1st September 2016 onwards**.
- For babies born before 1st September 2016, the previous optimisation plan remained. (Under this optimisation plan, the focus was on infants up to the age of 3 months.)
- The pathway consists of two offers:
 - All London maternity units will offer BCG vaccination to neonates.
 - For infants who fall into one of the PHE priority groups A or B¹ who have missed the vaccination in maternity, have moved into the borough or were born in a maternity unit outside London, they are eligible to be referred to a community BCG clinic up to the age of 12 months.

The TB service also works closely with the HIV service, due to the risk of co-infection with HIV in some communities. As is also the case with HIV, as a result of anticipated changes in the Havering population, the DPH and Health Protection Forum is keeping a watching brief on the incidence and prevalence of both HIV and TB.

2.3.3 Health Care Associated Infections (HCAI)

Healthcare-associated infections (HCAIs) can develop either as a direct result of interventions such as medical or surgical treatment, or from being in contact with the infection in a healthcare setting. The term HCAI covers a wide range of infections. The infections that are of most concern are methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile* (*C. difficile*). HCAIs pose a serious risk to patients, staff and visitors. They can incur significant costs for the NHS and cause significant morbidity to those infected. As a result, infection prevention and control is a key priority for the NHS.

The Infection Prevention and Control (IPC) team at BHRUT cover a range of areas designed to protect the health of patients and staff alike. The team monitor cleanliness of wards, staff hygiene practices, safe cleaning of medical equipment, antimicrobial stewardship, and hospital acquired infections.

¹ Groups eligible for vaccination:

Group A. All infants (aged 0 to 12 months) with a parent or grandparent who was born in a country where the annual incidence of TB is 40/100,000 or greater.

Group B. All infants (aged 0 to 12 months) living in areas of the UK where the annual incidence of TB is 40/100,000 or greater.

PHE provides a quarterly report to the Health Protection Forum, which includes data on MRSA cases and *C.difficile*. In addition, the membership of the HPF includes representation from infection control teams at Barking, Havering and Redbridge University Hospital Trust (BHRUT) and North East London Foundation Trust (NELFT). The CCG, as commissioner of healthcare, is also a member of the HPF.

The Department of Health sets a zero tolerance target for Acute Trusts for MRSA and less than 30 cases of *C.difficile*; published figures for BHRUT showed a total of 4 MRSA cases and 38 cases of *C.difficile* for 2015-16. Latest available data from PHE show that for this year to date (from April 2016 to October 2016) BHRUT has had 8 cases of MRSA and 56 cases of *C.difficile*.

Key actions being undertaken by BHRUT in their Annual Improvement Plan 2016-17 are:

- Increasing the visibility of the Infection Prevention and Control (IPC) team
- Streamlining the IPC Governance and Assurance processes and ensuring corporate support. The IPC Annual Improvement Plan 2016-17 is being implemented via a corporate strategy and being monitored by the Deputy Chief Nurse for Harm Free Care
- Creating more opportunities for closer alignment between IPCT/Sepsis Lead/Antimicrobial Pharmacist
- Developing and implementing current urinary catheter audit in line with care pathway; implementing catheter policy, care plan and passport.
- Improvements in cleaning and storage in Dirty Utility Rooms, toilets, etc.
- 3-yearly Antimicrobial Stewardship mandatory E-learning training for all junior doctors. Yearly face to face Antimicrobial Stewardship session for junior doctors (see also section 2.3.3 below).
- Ensuring systems are in place to manage and monitor the use of antimicrobials to ensure inappropriate and harmful use is minimised and patients with severe infections such as sepsis are treated promptly with the correct antibiotic
- Quality Improvement Programme in collaboration with NHS Improvement to increase compliance with hand hygiene, including advice to patients/visitors.
- Ensuring compliance with MRSA decolonisation regimen for new and known colonised patients

2.3.4 Antimicrobial Resistance

Antibiotic resistance is one of the most significant threats to patients' safety in Europe. It is driven by overuse, inappropriate prescribing and non-adherence to the prescription regimen (how to take the medicine, when, and completing the entire course). The response to this issue is being led globally by the World Health Organization, with individual nations responding with their own plans.

The UK Government published its Five-year Anti-Microbial Resistance (AMR) strategy in September 2013, led by Department of Health (DoH), Department for Environment Food and Rural Affairs (DEFRA), and Public Health England (PHE). PHE has also set up an AMR Strategy Programme Coordination Group to bring together delivery partners from across the health and social care sector. This group will coordinate the implementation of the human health aspects of four (out of seven) important areas of the AMR strategy for England. PHE's Antibiotic Guardian campaign (www.antibioticguardian.com) supports the AMR strategy.

The Barking and Dagenham, Havering and Redbridge Area Prescribing sub-Committee approved the formation of a North East London Antimicrobial Resistance Strategy Group (AMRSG) on 7th

May 2015, to provide clinical leadership and improve collaboration for antimicrobial stewardship. Havering Public Health Service contributes to this group. In May, the membership was extended to Waltham Forest, Newham and Tower Hamlets CCGs with the support of the relevant medicines decision making groups. City and Hackney CCG, Homerton University Hospital Foundation Trust and East London Foundation Trust joined in November 2016.

The Group is responsible for ensuring the implementation of a co-ordinated North East London wide response to the DoH and DEFRA UK Five-year Antimicrobial Resistance (AMR) strategy 2013-2018 and any associated guidelines. It supports the delivery of the main three strategic aims:

1. **Improve the knowledge and understanding of Antimicrobial Resistance (AMR)** through better information, intelligence, supporting data and developing more effective early warning systems to improve health security.
2. **Conserve and steward the effectiveness of existing treatments** through improving infection prevention and control and development of resources to facilitate optimal use of antibiotics in both humans and animals,
3. **Stimulate the development of new antibiotics, diagnostics and novel therapies** by promoting innovation and investment in the development of new drugs and ensuring that new therapeutics reach the market quickly.

Key actions being undertaken by the AMRSG include:

- BHR CCGs are co-ordinating a cycle of providing education and training to health and social care practitioners about antimicrobial stewardship and antimicrobial resistance with Health and Social Care teams
- conducting a prescribing review audit (ePACT, Define, pre-registration pharmacists/FY1 doctors) to capture non-formulary, cost and treatment length of antibiotics
- developing local systems and processes for peer review of prescribing.
- building a cycle of audit in primary care capturing the impact of discharge and follow up to avoid issuing repeat prescriptions for antimicrobial antibiotics, unless needed for a particular clinical condition or indication.
- Ensuring antimicrobial stewardship operates across all care settings, for example by increasing public awareness of antimicrobial resistance through local support of the Antibiotic Guardian campaign.

2.3.5 Routine Testing for *Legionella*

Legionnaires' disease was first recognised in 1976 and the bacterium later isolated and named *Legionella pneumophila*¹⁵. Since then, over 45 other species of *Legionella* have been described of which at least 18 have been associated with disease in humans. These organisms are widespread in the natural aquatic environment and in artificial water systems. The organism is an opportunistic human pathogen and infection is more often associated with artificial water systems. The disease is not known to be transmissible via person-to-person contact. As a result, the way to prevent or control outbreaks of Legionnaires' disease is to inhibit or limit the growth of these organisms in water. In the UK, the control of legionellae (bacteria of the genus *Legionella*) is prescribed in legislation¹⁶ and associated regulations¹⁷. A code of practice and associated guidance were first published as separate documents and were revised and combined into one document in 2000¹⁸. In 1992, a British Standard¹⁹ on *Legionella* sampling was published, and in 1998, an international standard²⁰ (which is currently under revision) for the detection and enumeration of legionellae by culture was published.

In September 2016 routine water testing identified low levels of legionella bacteria, i.e. at levels that are highly unlikely to cause infection, in a hydrotherapy pool at a senior school in Havering. This is exactly what routine testing is expected to identify and demonstrates the health protection system works well, identifying the presence of the bacteria before they reach a point that could cause a problem. The school carries out water testing routinely as a precaution and, as per standard procedures, use of the pool was immediately suspended until the legionella bacteria were removed. Public Health England worked closely with the school and sent out a letter and factsheet to all parents explaining how Legionnaire's is caught, and what are the early symptoms. These include a 'flu-like' illness with muscle aches, tiredness, headaches, dry cough and fever. Abdominal pain and diarrhoea are also common. These symptoms may lead on to pneumonia.

A further communication was sent to local GPs to advise them of the incident and what signs/symptoms to look out for if a child presented from that particular school. The Health Protection Team at PHE dealt with all necessary communication and provided the relevant scientific advice and actions.

Removal of the bacterium was actioned quickly and efficiently, with appropriate infection control measures in place to prevent infection.

2.4 Environmental Health

2.4.1 Air Quality

In Havering the main source of air pollution is road traffic vehicle emissions. Significant amounts also come from residential and commercial gas use, industry, construction sites and emissions from outside London. In 2006 Havering borough was declared an Air Quality Management Area (AQMA) by the Council. The declaration of Havering as an AQMA was considered the most appropriate action as a report indicated that the health related Air Quality Objectives for Nitrogen Dioxide (NO₂) and Airborne Particulate Matter (PM₁₀) at some locations would not be met by the relevant target date.

Although Havering has better Air Quality than most other London Boroughs, initiatives such as the Havering Air Quality Action Plan 2016-19 aims to continue the work already carried out to improve air quality and support the ambition to provide a cleaner environment in which to live.

In order to improve the air quality in the Borough this Council has delivered, or is currently working on, several initiatives;

- The Public Health and Environmental Protection team have collaboratively produced a Factsheet on Air Quality to advise the public on the impacts of air pollution on health and wellbeing, and what people can do to reduce their exposure. It directs people to sign up to the AirText alert system, which is designed to alert users to when air pollution levels are elevated so that they can take simple measures to help reduce the likelihood of impacts. When air pollution levels are predicted to reach moderate or higher levels users will receive an SMS message, a voicemail or an email to warn them that pollution may be elevated the following day. It is available to download on: www.airtext.info/signup
- Significant improvements are being made to Havering Council's Fleet Vehicles (around 210 diesel/bio mix and 5 electric utility vehicles), including fitting Nitrogen-filled tyres for greater efficiency and safety; and training for Fleet drivers on Eco-driving and urban driving.

- The 'Target Your Trip' webpage is located on the Council's website and aims to provide residents and businesses with sustainable travel information and the options available for them to use. It contains information on Cycling, Walking, Public Rights of Way, School Travel Plans, Taking Steps Magazine, Public Transport in Havering, Travel Advice for Business, Car Share Scheme and the links to the Freedom Pass available for older and disabled residents. The 'Target Your Trip' webpage can be found at: <https://www.havering.gov.uk/Pages/Category/Target-your-trip.aspx>
- As part of the Mayor's Air Quality Fund (MAQF) successful bid, a bespoke video has been created by the Environmental Protection team, in partnership with the Smarter Travel and Public Health teams, to advise on the causes and impacts of air pollution and what we can do to reduce our exposure to it. Two versions, featuring a character designed specifically for Havering, Miles the Mole, have been developed for use:
 - In primary schools, with narration provided by an age-appropriate actor
 - In GP surgeries, featuring stills clips from the original video with the key messages, particularly targeting those with underlying health conditions such as COPD or asthma, who may benefit from reducing their exposure to pollutants.

The videos will be supported by a campaign featuring Miles the Mole including posters, banners, bus and petrol pump nozzle advertisements, and a bespoke play created to be shown in 10 primary schools in Havering supported by appropriate lesson plans and curriculum materials.

The Health Protection Forum receives an annual report on air quality from the Air Quality Working Group, which has a comprehensive action plan to locally address the air quality issues.

2.4.2 Tobacco Harm Reduction

The Tobacco Harm Reduction Partnership was set up in September 2016, with the aim of providing leadership in the reduction of harm caused by tobacco in the local population, and to facilitate achievement of the vision of a tobacco-free generation in Havering by 2025 (please refer to Appendix E for full Terms of Reference). Meetings are held quarterly, with a special topic of focus: to date, the topics chosen have included the latest evidence on the harms caused by Tobacco and the Public Health Outcomes Framework (PHOF) profiles; and the evidence on use of e-cigarettes/vaping in public places and workplaces.

Quarterly reports on tobacco control initiatives, including actions to tackle underage sales and prosecutions, are received by the Health Protection Forum.

In November 2016 a free specialist Stop Smoking Service was commissioned and is now available for all pregnant women living in the borough. Referrals can be made directly to the service by the BHRUT maternity team/midwives at any time during pregnancy, and will be offered by the maternity service at every contact, commencing from the time of booking for the first antenatal appointment. Women can be referred to the service from the time of a first positive pregnancy test, by contacting the Stop Smoking Service for Pregnant Women directly. In order to further reduce potential harm to the unborn child, the service will also be available to partners/family members who normally reside in the same household as the pregnant woman. The Stop Smoking Clinics for pregnant women are available in a range of locations, including the Ingrebourne Children's Centre .

The specialist stop smoking service for pregnant women is supported by the BabyClear programme, which is a systematic approach to reducing the harms of tobacco smoke to the unborn baby. It aims to ensure every woman smoking during pregnancy is given factual information from a trained health professional about the harmful effects of Carbon Monoxide (CO) and encouraged to quit.

2.5 Emergency Planning

Local resilience forums are multi-agency partnerships of local public services that plan for and respond to large scale localised incidents; identifying potential risks and emergency plans to either prevent or mitigate the impact of any incidence on their local communities. The Chairperson of the Havering Borough Resilience Forum is a member of the HPF. Activities/issues this year included:

- Participation by BRF members in relevant emergency preparedness training exercises, including, e.g.: Exercise Cygnus – an NHSE-led exercise to test response to pandemic influenza; Operation Blackstart – a tabletop exercise to test the Council’s preparedness and response to complete loss of power across the UK; and Exercise Unified Response – a multi-agency, multinational emergency response exercise to a major rail catastrophe.
- Appropriate preparedness across both health and social service sector staff to the Junior Doctors strikes
- More stringent controls on aviation events in Havering (particularly at Damyns Hall Aerodrome) following the Civil Aviation Authority’s new rules for air shows in the wake of the A27 air show crash.
- Following extensive and unprecedented flooding in the borough on 23rd June, which the emergency services and Council responded to with speed and effectiveness, NHSE (through the BRF) are offering support to GPs to ensure they have up to date and appropriate Business Continuity Plans in place.
- In the light of the floods, the Council’s Emergency Planning team put on a special event to give advice to local residents on how to prepare for, and what to do in the event of experiencing a flood. Support included advice from local insurance agencies to ensure local residents have the right level of protection and knew how to contact their insurers.

3.0 Continuing to Protect the Health of Havering

The Health Protection Forum will continue to undertake surveillance of health protection in Havering through challenge and monitoring of health protection programmes and services. It will do this by continuing to receive a dashboard of key indicators that health protection arrangements are working well, and receiving reports on the main issues of concern.

Appendix A – Spotlight on Influenza

1.0 Background

Flu was chosen as the ‘spotlight’ topic for this year’s report for a number of reasons:

- i) NHSE recommissioned the school age vaccinations programme across London, with contracts that commenced in July 2016. Vaccination UK now delivers all of the relevant school-based immunisations in Havering. Nationally, flu vaccination is now offered to all primary school children in years 1-3. It was originally delivered just in year 1 children and is increasing by one school year each year. However, Havering was one of the original pilot sites for vaccination amongst primary school-aged children, and was the representative for the London region, covering children in years 1-6. Vaccination UK therefore continues to deliver flu vaccinations to children in years 1-6 locally. We are therefore in a privileged position to get ahead of the other boroughs in trialling and improving our uptake in children in years 4, 5 and 6.
- ii) Concerns raised by a local resident with Healthwatch Havering regarding confusion over eligibility criteria for receipt of a free flu vaccination and who is responsible for delivery of a vaccination to a child with an underlying health condition. The matter was taken up and resolved by the commissioners, NHSE.
- iii) A new vaccine, a Live Attenuated Influenza Vaccine (LAIV) was newly licensed and rolled out for the first time during the 2015-16 season. Therefore, this will be the first year that uptake of the new vaccine will be able to be compared.
- iv) Vaccine Effectiveness (VE) is the ability of a vaccine to prevent cases of flu circulating that season. However, there are many strains of flu circulating at any one time, and each one can mutate (known as antigenic drift (this is further explained below). If the circulating strain matches any of the 3 strains used in the vaccine, it will likely be more effective at preventing flu. The estimated VE was particularly low for the 2014-15 season, due to likely antigenic drift, at around 3%. News reports at the time suggested that the vaccination was “Flu jab given to millions is ‘useless’”². Such reporting may have significantly damaged people’s views about the need for vaccination and prevented them from taking up the opportunity. PHE and NHSE have run media and educational campaigns to highlight the benefits of having a flu jab, and the need to have one annually, as it is tailored to the predominant strain(s) circulating each year. However, the VE for 2015-16 was 52.4%, showing that the vaccination was much more compatible with the circulating strains³.

² Daily Telegraph 5th February 2015. <http://www.telegraph.co.uk/news/health/news/11393560/Flu-jab-given-to-millions-is-useless.html>

³ Public Health England (PHE) (2016). Influenza vaccine effectiveness: 2015 to 2016 estimates. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/530756/Influenza_vaccine_effectiveness_in_primary_care_in_children.pdf

2.0 An Introduction to Influenza

According to the World Health Organization (WHO), annual epidemics of influenza result in three to five million cases of severe illness, and approximately 250,000 to 500,000 deaths⁴. Influenza is a concern to public health, to the economy as a result of worker absenteeism, and to health infrastructure, by contributing to winter pressures.

2.1 What is Influenza (Flu)?

Influenza is an acute viral infection of the respiratory tract, with a usual incubation period of one to three days. The flu virus is contained in the millions of tiny droplets that come out of the nose and mouth when someone who is infected coughs or sneezes. These droplets typically spread about one metre. They hang suspended in the air for a while before landing on surfaces, where the virus can survive for up to 24 hours⁵.

Anyone who breathes in the droplets can catch flu. The virus can also be transmitted by touching the surfaces that the droplets have landed on and then touching the nose or mouth. Everyday items at home and in public places can easily become contaminated with the flu virus, including food, door handles, remote controls, handrails, telephone handsets and computer keyboards. Hand hygiene and cleaning surfaces frequently both help to reduce the likelihood of infection.

For healthy individuals, influenza is an unpleasant but usually self-limiting disease with recovery usually within two to seven days. Symptoms include:

- a high temperature (fever) of 38C (100.4F) or above
- tiredness and weakness
- a headache
- general aches and pains
- a dry, chesty cough

2.2 Who is most at risk?

The risk of serious illness from influenza is higher amongst the more vulnerable population:

- children under six months of age
- older people aged 65 or over
- pregnant women
- those with underlying health conditions including⁶
 - heart disease
 - lung disease
 - diabetes
 - chronic kidney disease
 - chronic neurological conditions
- those with a weakened immune system e.g. from chemotherapy or have HIV

⁴ World Health Organization (2009) *Influenza (Seasonal) Factsheet no. 211* [Online] World Health Organization <http://www.who.int/mediacentre/factsheets/fs211/en/index.html>

⁵ NHS Choices (2015). *Flu*. <http://www.nhs.uk/conditions/flu/Pages/Introduction.aspx>

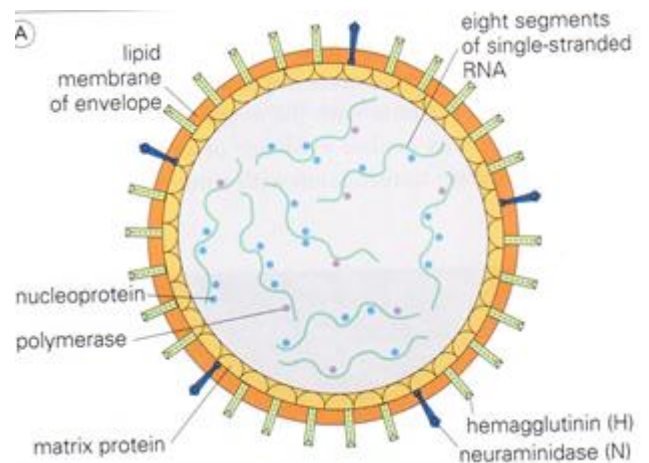
⁶ Public Health England (2015). *Influenza: Green Book*, chapter 19. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/456568/2904394_Green_Book_Chapter_19_v10_0.pdf

Influenza during pregnancy may also be associated with perinatal mortality, prematurity, smaller neonatal size and lower birth weight.

2.3 What causes flu?

There are three types of influenza virus: A, B and C. Influenza A and influenza B are responsible for most clinical illness, with Influenza C occurring in only very few sporadic cases⁷.

- **type A flu virus** – this is usually the more serious type. The virus is most likely to mutate into a new version that people are not resistant to. The H1N1 (swine flu) strain is a type A virus, and flu pandemics in the past were type A viruses.
- **type B flu virus** – this generally causes a less severe illness and is responsible for smaller outbreaks. It mainly affects young children.
- **type C flu virus** – this usually causes a mild illness similar to the common cold.



The influenza virus is constantly evolving as a way to ensure it continues to replicate itself inside its host. By changing the structure of the proteins on its cell surface (antigens), the virus fools its host that it is a new virus. Minor changes to these surface antigens (hemagglutinin and neuraminidase) occur continuously, resulting in the circulation of new strains during each influenza “season” (antigenic drift). Influenza A and B viruses alter gradually (antigenic drift) leading to significant epidemics every few years. Occasionally a major change to the virus occurs, resulting in a new subtype (antigenic shift), which can lead to major pandemics that the existing population have little immunity to. The last major pandemic was in 2009 when the Influenza A virus underwent antigenic shift⁸. Flu can be caught multiple times, because flu viruses change regularly and the body won't have natural resistance to the new versions³.

2.4 Why is it called ‘Seasonal Flu’?

Although flu can actually be caught at any time over the year, most cases of flu in the UK tend to occur during an eight- to ten-week period during the winter. The timing, extent and severity of this ‘seasonal’ influenza can all vary. Influenza A viruses cause outbreaks most years and it is these viruses that are the usual cause of epidemics. Large epidemics occur intermittently. Influenza B tends to cause less severe disease and smaller outbreaks overall. The burden of influenza B disease is mostly in children when the severity of illness can be similar to that associated with influenza A.

⁷ Public Health England (2013). *Immunisation Against Infectious Diseases: The Green Book; Chapter 19- Influenza*. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/456568/2904394_Green_Book_Chapter_19_v10_0.pdf

⁸ World Health Organisation (2010). *What is the pandemic (H1N1) 2009 virus?* http://www.who.int/csr/disease/swineflu/frequently_asked_questions/about_disease/en/

2.5 Complications

Complications of flu mostly affect people in high-risk groups, such as the elderly, pregnant women and those who have a long-term medical condition or weakened immune system. The most common complication is a bacterial chest infection, such as bronchitis. Occasionally, this can become more serious and develop into primary influenza pneumonia. Although primary influenza pneumonia is a rare complication that may occur at any age and carries a high case fatality rate, it was seen more frequently during the 2009 pandemic and the following influenza season.

Amongst people who suffer from a long term condition, such as asthma, or Chronic Obstructive Pulmonary Disease (COPD), their condition can be worsened by getting flu. In people with diabetes, flu can affect blood sugar levels, potentially causing hyperglycaemia (high blood sugar) or, in people with type 1 diabetes, diabetic ketoacidosis (a dangerous condition caused by a lack of insulin in the body). Less common complications of flu include:

- tonsillitis – inflammation of the tonsils
- otitis media – an infection of the middle ear
- sinusitis – inflammation of the lining of the sinuses (small, air-filled cavities behind your cheekbones and forehead)
- febrile seizures (convulsions) – a fit that can happen when a child has a fever
- meningitis – infection in the brain and spinal cord
- encephalitis – inflammation of the brain

3.0 Protecting Against Flu

Strategies for protecting against flu are conducting good surveillance, vaccination, good hygiene (including handwashing and cleaning), and antiviral medication, which are detailed below.

3.1 Surveillance

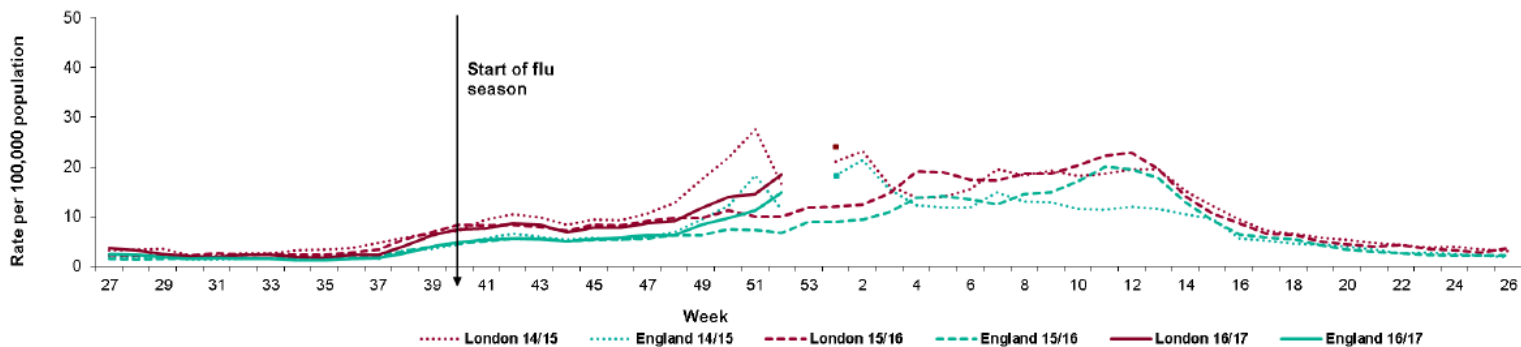
It is important to keep track of the incidence and prevalence of flu in the population, both globally and locally, to detect and respond to epidemics or pandemics as they start to occur.) WHO plays an important role in surveillance of the global trends in flu outbreaks. The WHO's Global Influenza Programme (GIP) provides global standards for influenza surveillance. In addition GIP collects and analyses virological and epidemiological influenza surveillance data from around the world. The regular sharing of quality influenza surveillance and monitoring data by countries allows WHO to:

- provide countries, areas and territories with information about influenza transmission in other parts of the world to allow national policy makers to better prepare for upcoming seasons;
- describe critical features of influenza epidemiology including risk groups, transmission characteristics, and impact;
- monitor global trends in influenza transmission; and
- support the selection of influenza strains for vaccine production.

In the UK, Public Health England is responsible for monitoring trends in presentations of influenza-like illness (ILI) at GP surgeries (Fig. 1). Those GPs who do report presentations of

ILI do so voluntarily, which provides a valuable estimate of the spread of flu cases, but not all GPs choose to take part. Confirmed cases of flu are verified biochemically by teams at PHE.

Figure 1. Historical Trends in Influenza-Like-Illness (ILI) GP Consultation Rates in London⁹



3.2 Vaccination

3.2.1 How Vaccinations Work

Vaccines work by introducing our bodies to a safe form of a disease without actually infecting us with that disease. Vaccination prompts the immune system to recognise a foreign agent (pathogen), and produce antibodies to fight that infectious agent. If the live virus attacks the body at some future point, the antibodies created from contact with the vaccine then prevent infection.

Three types of influenza vaccine are available in the UK:

- ‘Split virion inactivated’ or ‘disrupted virus’ – the whole virus is treated so they cannot cause infection – it is inactivated by exposing it to organic solvents or detergents in a lab environment.
- ‘Surface antigen, inactivated’ – containing the surface material from disrupted virus particles (*i.e.* hemagglutinin)
- A live attenuated vaccine – made ‘weaker’ in the laboratory. The vaccine currently given in the UK is Fluenz®, which is preferred for children aged 2-18 years because it provides a higher level of protection. This is delivered as a nasal spray, rather than as an injection

There is no difference between the first two types of vaccines in efficacy or adverse reactions. Being inactivated, they do not cause the diseases against which they protect. Fluenz® should not be given to pregnant women. The live attenuated vaccine has been shown to have increased efficacy in children aged 2-18 years.

After vaccination, antibody levels can take up to 14 days to reach the level required for protection. It is important that vaccination takes place each year to protect against the emergent viruses.

No vaccine is 100% effective, including the flu vaccine. However, the vaccine usually prevents about half of all flu cases. Even if someone does get flu after being vaccinated, the disease is often less severe than it would have been. It is important to remember that the flu vaccine only protects against flu, but there are other illnesses which have flu-like symptoms which can still be caught after getting the flu vaccine. It takes up to two weeks for the

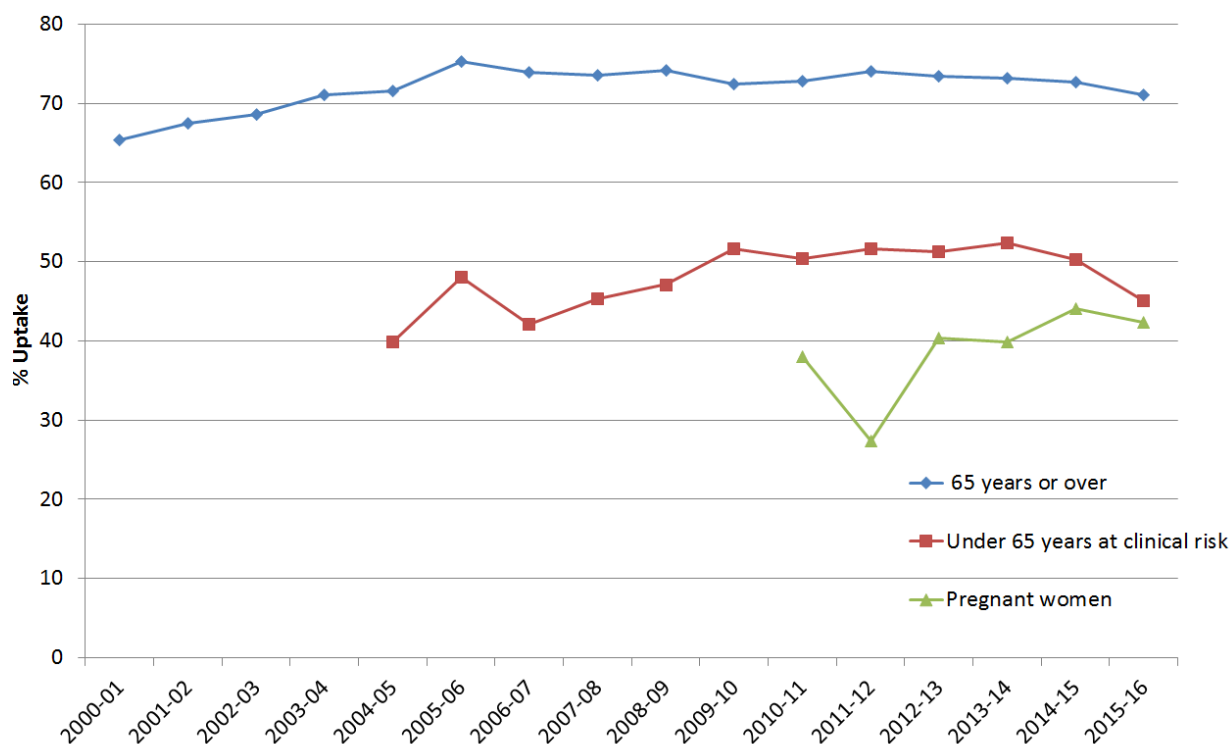
⁹ Data Source: Public Health England (2016) Field Epidemiology Service, SEaL

vaccine to take effect, so flu may still be caught if a person is exposed to the virus during this time. Getting vaccinated as early as possible in the season can help to prevent this.

3.2.2 Vaccination Uptake

Vaccinations are offered by GPs, Pharmacists, and in schools by an NHS vaccination service for children in years 1-4 (or 1-6 in Havering, as it is a pilot site for children's flu vaccinations). Uptake has increased since it was introduced in 2000, but there is still a way to go to meet the ambition of 75% uptake by all eligible groups, particularly among pregnant women (Fig. 2).

Figure 2. Uptake of Flu Vaccination Amongst Eligible Groups in England 2000-2015



In Havering, uptake for the 2015-16 season was lower than that for England, but on a par with London (Table 1).

Table 1. Percentage (%) uptake of seasonal flu vaccination by eligible groups for the 2015-16 flu season for Havering compared with London and England¹⁰

% Vaccination Uptake 2015/16 Season	Havering	London	England
Children Aged 2 years & NOT in a clinical risk group	24.9	26.3	35.0
Children Aged 3 years & NOT in a clinical risk group	26.1	28.3	37.0
Children Aged 4 years & NOT in a clinical risk group	21.2	21.0	29.1
Children in school years 1-6 (pilot areas only)	52.1	52.1*	57.9
People between 6 months and 65 years in a Clinical Risk Group	38.9	43.7	45.1
Pregnant Women	34.2	38.6	42.3
65 years and Over	66.4	66.4	71.0

* The Pilot area in London was Havering, so this figure is actually Havering.

3.3 Good Hygiene

Simple measures such as adopting good hygiene can be one of the most effective ways of preventing flu (as well as several other common illnesses such as Norovirus). To reduce the risk of getting flu or spreading it to other people, care should be taken to always:

- wash hands regularly with soap and warm water
- clean surfaces such as computer keyboards, telephones and door handles regularly to get rid of germs
- use tissues to cover the mouth and nose when coughing or sneezing
- put used tissues in a bin as soon as possible , following the 'Catch it, Kill it, Bin it' routine.

3.4 Antiviral Medication

Antiviral drugs are prescription medicines that help fight the virus in the body once infected. In terms of flu, the main benefit of an antiviral is that they can lessen the symptoms by 1-2 days, thereby reducing the burden on the body, and the likelihood of serious flu complications such as pneumonia. Taking the antiviral medicines oseltamivir (Tamiflu) or zanamivir (Relenza) is recommended if all of the following apply:

- when the rate of reported Influenza-Like-Illness (ILI) rises above the baseline thresholds set for that particular time of year. These thresholds are calculated using the "Moving Epidemic Method" (MEM), which takes into account the rates of ILI that would be expected for seasonal variation in flu cases. MEM is used as a standard methodology for setting influenza surveillance thresholds across Europe

¹⁰ Public Health England (2016). *National Childhood Influenza Vaccination Programme 2015 to 2016. Seasonal influenza vaccine uptake for children of primary school age Final data for 1 Sep 2015 to 31 Jan 2016*

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/544542/Childhood_Influenza_Vaccination_Programme_Report_2015_2016.pdf

- someone is over 65, pregnant, or has a medical condition that puts them at risk of [complications of flu](#), such as [diabetes](#), heart disease, lung disease, [kidney disease](#) or a neurological disease
- the individual has been in contact with someone with a flu-like illness they can start antiviral treatment within 36-48 hours
- not had the flu vaccination

If there is an outbreak of flu in a residential or nursing home – where the flu virus can often spread very quickly – antiviral medication may be offered to people if they have been in contact with someone with confirmed flu.

4.0 Annual Flu Plan 2016-17 Governance

4.1 Responsibilities

The arrangements for flu prevention extends across a range of organisations, and relies on systems to work together seamlessly.

The **Department of Health (DH)** is responsible for:

- policy decisions on the response to the flu season
- holding NHS England and PHE to account through their respective framework agreements, the Mandate, and the Section 7A agreements
- oversight of the supply of antiviral medicines and authorisation of their use
- authorising campaigns such as ‘Catch it, Kill it, Bin it’

NHS England is responsible for:

- commissioning the flu vaccination programme under the terms of the Section 7A agreements
- assuring that the NHS is prepared for the forthcoming flu season
- monitoring the services that GP practices and community pharmacies provide for flu vaccination to ensure that services comply with the specifications
- building close working relationships with Directors of Public Health (DsPH) to ensure that local population needs are understood and addressed by providers of flu vaccination services

Public Health England is responsible for:

- planning and implementation of the national approach
- monitoring and reporting of key indicators related to flu, including flu activity and vaccine uptake
- procurement and distribution of flu vaccine for children
- oversight of central vaccine supply
- advising NHS England on the commissioning of the flu vaccination programme
- managing and co-ordinating the response to local incidents and outbreaks of flu
- public communications to promote uptake of flu vaccination and other aspects of combating flu such as hand hygiene
- supporting DsPH in local authorities in their role as local leaders of health and ensuring that they have all relevant expert input, surveillance and population data needed to carry out this role effectively

Local authorities, through their DsPH, have responsibility for:

- providing appropriate advocacy with key stakeholders and challenge to local arrangements to ensure access to flu vaccination and to improve its uptake by eligible populations
- providing leadership, together with local resilience partners to respond appropriately to local incidents and outbreaks of flu infection

Clinical commissioning groups (CCGs) are responsible for:

- quality assurance and improvement which extends to primary medical care services delivered by GP practices including flu vaccination and antiviral medicines

GP practices, community pharmacists and other providers are responsible for:

- educating patients, particularly those in at-risk groups, about the appropriate response to the occurrence of flu-like illness and other illness that might be precipitated by flu
- ordering the correct amount and type of vaccine for their eligible patients, taking into account new groups identified for vaccination and the ambition for uptake, to ensure that vaccine wastage is minimised
- storing vaccines in accordance with national guidance
- ensuring that all those eligible for the flu vaccine are invited personally to receive their vaccine
- ensuring vaccination is delivered by suitably trained, competent healthcare professionals who participate in recognised on-going training and development in line with national standards
- maintaining regular and accurate data collection using appropriate returns
- encouraging and facilitating flu vaccination of their own staff
- ensuring that antiviral medicines are prescribed for appropriate patients, once the CMO/CPhO letter has been distributed alerting them that antiviral medicines can be prescribed

Schools can assist by:

- supporting the local vaccinations provider to deliver the LAIV nasal spray to pupils in their school
- ensuring parents receive information about the importance of the flu vaccination
- incorporating flu information in PSHE curriculum talks

Local authorities can also assist by:

- promoting uptake of flu vaccination among eligible groups, for example older people in residential or nursing care, either directly or through local providers
- promoting uptake of flu vaccination among those staff providing care for people in residential or nursing care, either directly or through local providers

All employers of individuals working as providers of frontline health and social care services are responsible for:

- management and oversight of the flu vaccination campaign or alternative infection control measures for their frontline staff
- support to providers to ensure access to flu vaccination and to maximise uptake among those eligible to receive it

4.2 Actions being Taken

The following actions were outlined by NHS England (NHSE) in its Annual Flu Letter for the 2016/17 flu season:

- there should be a 100% active offer of immunisation to eligible children. Providers and commissioners will be required, if asked, to demonstrate that such an offer has been made. A minimum uptake of 40% has been shown to be achievable in both primary care and school based programmes and some have achieved much higher rates. As a minimum, we would expect vaccine uptake rates of between 40-65% to be attained by every provider. Uptake levels should be consistent across all localities and sectors of the population. A limited number of sessions for children who missed out on vaccination during the first routine planned session should be considered towards the end of the season. Such arrangements would be subject to local commissioning agreement.”The childhood flu vaccination programme has now been extended to children in year 3 nationally, but as Havering is already a pilot site, it already covers children in years 1-6.
- NHSE has an uptake ambition for all eligible groups (Table 2).
- NHS England is incentivising the uptake of flu vaccinations for frontline clinical staff through the CQUIN scheme for 2016/17. Providers commissioned under the NHS Standard Contract will be eligible for CQUIN payments, e.g. acute, mental health, community and ambulance trusts. Providers will be rewarded based on the percentage of staff vaccinated. Only those providers that achieve 75% or above will be eligible for the full payment associated with this indicator. It is expected that primary care providers aim to achieve this ambition as well.
- The WHO target for flu vaccination uptake in the 65 years and over age group is 75%. Over the last ten years NHSE have been close to this in England and will continue to aim for the WHO target. Whilst the principal focus of the national programme in England is the extension of the programme to children, it is essential to work hard to achieve the WHO ambition this year.

Table 2. Uptake Ambitions for Seasonal Flu Vaccination amongst eligible groups for 2016/17

Target group	Uptake ambition for 2016/17
Aged under 65 ‘at risk’	55%
Pregnant women	55%
Eligible children aged 2 years to school year 3 age	40-65%
Aged 65 years and over	75%
Healthcare workers*	75%

* This is an NHSE Trust-level ambition to reach a minimum of 75% uptake amongst healthcare workers and an improvement in every Trust

The routine immunisation schedule				from Summer 2016
Age due	Diseases protected against	Vaccine given and trade name		Usual site ¹
Eight weeks old	Diphtheria, tetanus, pertussis (whooping cough), polio and <i>Haemophilus influenzae</i> type b (Hib)	DTaP/IPV/Hib	Pediacel or Infanrix IPV Hib	Thigh
	Pneumococcal (13 serotypes)	Pneumococcal conjugate vaccine (PCV)	Prevenar 13	Thigh
	Meningococcal group B (MenB) ²	MenB ²	Bexsero	Left thigh
	Rotavirus gastroenteritis	Rotavirus	Rotarix	By mouth
Twelve weeks	Diphtheria, tetanus, pertussis, polio and Hib	DTaP/IPV/Hib	Pediacel or Infanrix IPV Hib	Thigh
	Rotavirus	Rotavirus	Rotarix	By mouth
Sixteen weeks old	Diphtheria, tetanus, pertussis, polio and Hib	DTaP/IPV/Hib	Pediacel or Infanrix IPV Hib	Thigh
	MenB ²	MenB ²	Bexsero	Left thigh
	Pneumococcal (13 serotypes)	PCV	Prevenar 13	Thigh
One year old	Hib and MenC	Hib/MenC booster	Menitorix	Upper arm/thigh
	Pneumococcal (13 serotypes)	PCV booster	Prevenar 13	Upper arm/thigh
	Measles, mumps and rubella (German measles)	MMR	MMR VaxPRO ³ or Priorix	Upper arm/thigh
	MenB ²	MenB booster ²	Bexsero	Left thigh
Two to seven years old (including children in school years 1, 2 and 3) ⁵	Influenza (each year from September)	Live attenuated influenza vaccine LAIV ⁴	Fluenz Tetra ³	Both nostrils
Three years four months old	Diphtheria, tetanus, pertussis and polio	DTaP/IPV	Infanrix IPV or Repevax	Upper arm
	Measles, mumps and rubella	MMR (check first dose given)	MMR VaxPRO ³ or Priorix	Upper arm
Girls aged 12 to 13 years	Cervical cancer caused by human papillomavirus (HPV) types 16 and 18 (and genital warts caused by types 6 and 11)	HPV (two doses 6-24 months apart)	Gardasil	Upper arm
Fourteen years old (school year 9)	Tetanus, diphtheria and polio	Td/IPV (check MMR status)	Revaxis	Upper arm
	Meningococcal groups A, C, W and Y disease	MenACWY	Nimenrix or Merveo	Upper arm
65 years old	Pneumococcal (23 serotypes)	Pneumococcal polysaccharide vaccine (PPV)	Pneumococcal polysaccharide vaccine	Upper arm
65 years of age and older	Influenza (each year from September)	Inactivated influenza vaccine	Multiple	Upper arm
70 years old	Shingles	Shingles	Zostavax ³	Upper arm ⁶

¹ Where two or more injections are required at once, these should ideally be given in different limbs. Where this is not possible, injections in the same limb should be given 2.5cm apart. For more details see Chapters 4 and 11 in the Green Book. All injected vaccines are given intramuscularly unless stated otherwise.

² Only for infants born on or after 1 May 2015

³ Contains porcine gelatine

⁴ If LAIV (live attenuated influenza vaccine) is contraindicated and child is in a clinical risk group, use inactivated flu vaccine

⁵ Age on 31 August 2016

⁶ This can be administered subcutaneously but intramuscular is preferred.

All vaccines can be ordered from www.immform.dh.gov.uk free of charge except influenza for adults and Pneumococcal polysaccharide vaccine.

Selective immunisation programmes

Target group	Age and schedule	Disease	Vaccines required
Babies born to hepatitis B infected mothers	At birth, four weeks, eight weeks and at one year ¹	Hepatitis B	Hepatitis B vaccine (Engerix B / HBvaxPRO)
Infants in areas of the country with TB incidence $\geq 40/100,000$	At birth	Tuberculosis	BCG
Infants with a parent or grandparent born in a high incidence country ²	At birth	Tuberculosis	BCG
Pregnant women	During flu season At any stage of pregnancy	Influenza	Inactivated flu vaccine
Pregnant women	From 20 weeks gestation ³	Pertussis	dTaP/IPV (Boostrix-IPV or Repevax)

¹ Take blood for HBsAg to exclude infection

² Where the annual incidence of TB is $\geq 40/100,000$

www.gov.uk/government/uploads/system/uploads/attachment_data/file/393840/Worldwide_TB_Surveillance_2013_Data_High_and_Low_Incidence_Tables____2_.pdf

³ Can be given from 16 weeks but usually offered after the anomaly scan

Additional vaccines for individuals with underlying medical conditions

Medical condition	Diseases protected against	Vaccines required ¹
Asplenia or splenic dysfunction (including sickle cell and coeliac disease) ²	Meningococcal groups A, B, C, W and Y Pneumococcal Haemophilus influenzae type b (Hib) Influenza	Hib/MenC MenACWY MenB PCV13 (up to five years of age) PPV (from two years of age) Annual flu vaccine
Cochlear implants	Pneumococcal	PCV13 (up to five years of age) PPV (from two years of age)
Chronic respiratory and heart conditions ² (such as severe asthma, chronic pulmonary disease, and heart failure)	Pneumococcal Influenza	PCV13 (up to five years of age) PPV (from two years of age) Annual flu vaccine
Chronic neurological conditions ² (such as Parkinson's or motor neurone disease, or learning disability)	Pneumococcal Influenza	PCV13 (up to five years of age) PPV (from two years of age) Annual flu vaccine
Diabetes ²	Pneumococcal Influenza	PCV13 (up to five years of age) PPV (from two years of age) Annual flu vaccine
Chronic kidney disease (CKD) ² (including haemodialysis)	Pneumococcal (stage 4 and 5 CKD) Influenza (stage 3, 4 and 5 CKD) Hepatitis B (stage 4 and 5 CKD)	PCV13 (up to five years of age) PPV (from two years of age) Annual flu vaccine Hepatitis B
Chronic liver conditions ²	Pneumococcal Influenza Hepatitis A Hepatitis B	PCV13 (up to five years of age) PPV (from two years of age) Annual flu vaccine Hepatitis A Hepatitis B
Haemophilia	Hepatitis A Hepatitis B	Hepatitis A Hepatitis B
Immunosuppression due to disease or treatment ²	Pneumococcal Influenza	PCV13 (up to five years of age) ² PPV (from two years of age) Annual flu vaccine
Complement disorders ² (including those receiving complement inhibitor therapy)	Meningococcal groups A, B, C, W and Y Pneumococcal Haemophilus influenzae type b (Hib) Influenza	Hib/MenC MenACWY MenB PCV13 (to any age) PPV (from two years of age) Annual flu vaccine

¹ Check relevant chapter of green book for specific schedule

² To any age in severe immunosuppression

³ Consider annual influenza vaccination for household members and those who care for people with these conditions

- [NHS abdominal aortic aneurysm \(AAA\) programme](#) : The NHS abdominal aortic aneurysm (AAA) screening programme is available for all men aged 65 and over in England. The programme aims to reduce AAA related mortality among men aged 65 to 74. A simple ultrasound test is performed to detect AAA. The scan itself is quick, painless and non-invasive and the results are provided straight away. A result letter is also sent to all patients' GPs.
- [NHS diabetic eye screening \(DES\) programme](#): Evidence shows that early identification and treatment of diabetic eye disease could reduce sight loss. The eligible population for DES is all people with type 1 and type 2 diabetes aged 12 or over. Screening gives people with diabetes and their primary diabetes care providers information about very early changes in their eyes. The main treatment for diabetic retinopathy is laser surgery. People already under the care of an ophthalmology specialist for the condition are not invited for screening. The programme also offers pregnant women with type 1 or type 2 diabetes additional tests because of the risk of developing retinopathy.
- [NHS fetal anomaly screening programme \(FASP\)](#) : The NHS fetal anomaly screening programme (FASP) is one of the antenatal and newborn NHS population screening programmes. FASP offers screening for pregnant women to check the baby for Down's syndrome and other fetal anomalies, including:
 - Anencephaly
 - open spina bifida
 - cleft lip
 - diaphragmatic hernia
 - gastrochisis
 - exomphalos
 - serious cardiac abnormalities
 - bilateral renal agenesis
 - lethal skeletal dysplasia
 - Edwards' syndrome (T18)
 - Patau's syndrome (T13)
- [NHS infectious diseases in pregnancy screening \(IDPS\) programme](#): The IDPS programme currently screens for HIV, Hepatitis B, Syphilis and Rubella susceptibility. Midwives and healthcare professionals should offer and recommend testing to all pregnant women as part of their antenatal care. The woman's decision to accept or decline testing should be noted in the woman's health records.
- [NHS newborn and infant physical examination \(NIPE\) screening programme](#): NIPE screens newborn babies within 72 hours of birth, and then once again between 6 to 8 weeks for conditions relating to their:
 - Heart – congenital heart disease
 - Hips – developmental dysplasia of the hip
 - Eyes – congenital cataracts
 - Testes – cryptorchidism (undescended testes)The 6 to 8 week screen is necessary as some conditions appear later in a child's development.
- [NHS newborn blood spot \(NBS\) screening programme](#): The NHS newborn blood spot (NBS) screening programme aims to identify rare but serious conditions. Midwives carry out heel prick tests (taking blood from a baby's heel) when babies are 5 days old (the first day of life being day 0) and sends the samples off for testing. Babies who are new to the country or are yet to have a heel prick test are eligible for testing up to a year old. This excludes the cystic fibrosis screening test, which is not reliable after 8 weeks of age.
- [NHS sickle cell and thalassaemia \(SCT\) screening programme](#): The NHS Sickle Cell and Thalassaemia (SCT) screening programme is a genetic screening programme. This means that it also identifies people who are genetic carriers for sickle cell, thalassaemia and

¹¹ HM Government, NHS Screening Programmes. Available on: <https://www.gov.uk/topic/population-screening-programmes>

other haemoglobin disorders. If 2 people who are carriers have a baby together, there is an increased risk that their baby could inherit a haemoglobin disorder. It screens for:

- genetic carriers for sickle cell, thalassaemia and other haemoglobin disorders
- sickle cell disease
- thalassaemia
- haemoglobin disorders

It offers screening to:

- all pregnant women
- fathers-to-be, where antenatal screening shows the mother is a genetic carrier
- all newborn babies, as part of the newborn blood spot screening programme
- [NHS newborn hearing screening programme \(NHSP\)](#): Early identification of hearing impairment gives children a better chance of developing speech and language skills, and of making the most of social and emotional interaction from an early age. The parents of all babies born or resident in England should be offered hearing screening for their baby within 4 to 5 weeks of birth. Babies that miss screening should receive it as soon as possible, but not after 3 months of age. Some babies are not eligible for screening; this may be because the babies have an already-known risk of hearing impairment or deafness, from another condition. Healthcare staff can refer these babies for full audiological assessment without requiring a routine hearing screen. The programme offers 2 types of test:
 - automated otoacoustic emission (AOAE): usually the default test for well babies.
 - automated auditory brainstem response (AABR): test performed on both ears when there was no clear AOAE response.
- [Screening and quality assurance \(all programmes\)](#): All screening programmes are audited and quality assured to minimise the risk of harm to patients. Screening processes are not perfect, and in every screen there are a number of false positives and false negatives. Utilisation of failsafe procedures, programme standards and quality assurance by regional quality teams aims to make the screening process as rigorous and effective as possible

Appendix D – Notifiable Diseases

Diseases notifiable to local authority proper officers under the Health Protection (Notification) Regulations 2010:

- Acute encephalitis
- Acute infectious hepatitis
- Acute meningitis
- Acute poliomyelitis
- Anthrax
- Botulism
- Brucellosis
- Cholera
- Diphtheria
- Enteric fever (typhoid or paratyphoid fever)
- Food poisoning
- Haemolytic uraemic syndrome (HUS)
- Infectious bloody diarrhoea
- Invasive group A streptococcal disease
- Legionnaires' disease
- Leprosy
- Malaria
- Measles
- Meningococcal septicaemia
- Mumps
- Plague
- Rabies
- Rubella
- Severe Acute Respiratory Syndrome (SARS)
- Scarlet fever
- Smallpox
- Tetanus
- Tuberculosis
- Typhus
- Viral haemorrhagic fever (VHF)
- Whooping cough
- Yellow fever

Report other diseases that may present significant risk to human health under the category 'other significant disease'

Havering Tobacco Harm Reduction Partnership Board

Terms of Reference v1.0

1. Introduction

Smoking is the largest single preventable cause of morbidity, mortality and inequalities in health in Britain and accounts for about half of the difference in life expectancy between the lowest and the highest income groups¹². Tobacco is responsible for causing approximately 80,000 premature deaths each year in England and kills half of life-long users, causing harm not only to smokers but also to the people around them. Deaths from smoking are more numerous than the next six most common causes of preventable death combined (i.e. drug use, road accidents, other accidents and falls, preventable diabetes, suicide and alcohol abuse).¹³

Smoking and the harm it causes are not evenly distributed. People in disadvantaged areas are more likely to smoke and less likely to quit. Men and women from the most deprived groups have more than double the death rate from lung cancer compared with those from the least deprived. Smoking is twice as common among people with longstanding mental health problems.¹⁴ Smoking in pregnancy increases the risks of miscarriage, stillbirth or having a sick baby, and is a major cause of child health inequalities. Two-thirds of smokers start smoking before the age of 18, and the reasons they start are complex, ranging from peer pressure to behavioural problems.

Since the publication of the Government's 2011 Tobacco Control Plan, there has been a strengthening of smoke-free legislation, and more is known about the factors that prompt and sustain tobacco use. For example:

- There is greater knowledge and focus on the influence of social networks and settings, including the role of employers and workplace health
- There is greater availability and use of self-help aids for all types of health improvement including for smoking cessation, such as smartphone apps and other online products, and fitness products
- Many people are now choosing to use electronic cigarettes to help them to quit
- There is greater knowledge about the factors that contribute to children taking up smoking, including the part played by the availability of illicit tobacco and under-age sales

¹² Public Health England (2015): *Smoking Cessation in Secure Mental Health Settings – Guidance for Commissioners*, avail: <https://www.gov.uk/government/publications/smoking-cessation-in-secondary-care-mental-health-settings>

¹³ Department of Health (2011): *Healthy Lives, Healthy People: a tobacco control plan for England*, avail: <https://www.gov.uk/government/publications/the-tobacco-control-plan-for-england>

¹⁴ Public Health England (2015) *Health matters: smoking and quitting in England* avail <https://www.gov.uk/government/publications/health-matters-smoking-and-quitting-in-england/smoking-and-quitting-in-england>

Public Health England describes a vision for a tobacco-free generation by 2025. A multi-agency Havering Tobacco Harm Reduction Partnership Board has been established to provide strategic leadership for this vision locally, taking into account new knowledge and evidence about the impact and use of tobacco products.

2. Aims of the Tobacco Harm Reduction Partnership Board

To provide leadership in the reduction of harm caused by tobacco in the local population, and to facilitate achievement of the vision of a tobacco-free generation in Havering by 2025.

3. Objectives of the Tobacco Harm Reduction Partnership Board

- Understand the use of tobacco in Havering and the harm caused
- Take stock of existing tobacco harm reduction measures
- Provide strategic leadership in the prevention of smoking in children and young people, promotion of smoking cessation in all age groups, and promote smoke free environments
- Take account of national policy guidance and evidence of best practice to develop an action plan setting out key priorities to be taken forward locally.
- To review progress regularly by developing and monitoring a set of indicators that links clearly to agreed outcomes.

4. Governance Arrangements

The Board is responsible to the Health Protection Forum, and will provide annual reports to the Forum. The Board may wish to set up task and finish groups to take forward specific initiatives.

5. Secretariat

The Board will be supported by the Council's Public Health Team. Papers will be circulated by email one week before the meeting.

6. Regularity of Meetings

The Board will meet every six weeks in the initial period followed by quarterly meetings. The group will determine the need for working groups and annual workshops with wider stakeholders.

7. Review of Terms of Reference

Terms of Reference will be reviewed annually and may be subject to review more frequently if requested by a member of the Board, and seconded by another member.

8. Membership:

Director of Public Health, LBH (Chair)

Consultant in Public Health, LBH (Vice Chair)

Public Health Specialist, LBH

Environmental Health, LBH

Trading Standards, LBH

Enforcement/Underage Sales, LBH
BHRUT representative
Healthy Schools Co-ordinator, LBH
Education Strategic Partnership Rep
CCG Commissioner (Mental Health Services)
NELFT Mental Health Service representative
GP/Practice Nurse representative
Pharmacy representative
Communications, LBH
Healthy Workplace Lead, LBH

Other services and organisations will be co-opted on to the Board as necessary.

Terms of Reference agreed on (date)

Signed (Chair)

Appendix F – Glossary of Terms

- **Antigenic Drift** - small changes in the genes of influenza viruses that happen continually over time as the virus replicates. These small genetic changes usually produce viruses that are pretty closely related to one another, usually share the same [antigenic properties](#) and an immune system exposed to an similar virus will usually recognize it and respond. (This is sometimes called cross-protection.) But these small genetic changes can accumulate over time and result in viruses that are antigenically different. When this happens, the body's immune system may not recognize those viruses. This process works as follows: a person infected with a particular flu virus develops antibody against that virus. As antigenic changes accumulate, the antibodies created against the older viruses no longer recognize the "newer" virus, and the person can get sick again. Genetic changes that result in a virus with different antigenic properties is the main reason why people can get the flu more than one time. This is also why the flu vaccine composition must be reviewed each year, and updated as needed to keep up with evolving viruses.
- **Antigenic Shift** - is an abrupt, major change in the influenza A viruses, resulting in new hemagglutinin and/or new hemagglutinin and neuraminidase proteins in influenza viruses that infect humans. Shift results in a new influenza A subtype or a virus with a hemagglutinin or a hemagglutinin and neuraminidase combination that has emerged from an animal population that is so different from the same subtype in humans that most people do not have immunity to the new (e.g. novel) virus. Such a "shift" occurred in the spring of 2009, when an H1N1 virus with a new combination of genes emerged to infect people and quickly spread, causing a pandemic. When shift happens, most people have little or no protection against the new virus. While influenza viruses are changing by antigenic drift all the time, antigenic shift happens only occasionally. Type A viruses undergo both kinds of changes; influenza type B viruses change only by the more gradual process of antigenic drift.
- **CQUIN** - The Commissioning for Quality and Innovation (CQUINs) payments framework encourages care providers to share and continually improve how care is delivered and to achieve transparency and overall improvement in healthcare. The payments exist to encourage NHS organisations to sharpen their focus on quality by making a proportion of income conditional on quality and innovation. Since its introduction in 2010/11, CQUIN has increased in importance for providers — increasing from 0.5 to 2.5 per cent of contract income in 2012/13. With the average acute trust earning around £230m a year, nationally the CQUIN pot amounts to over £700m. For individual trusts, it can be millions of pounds.
- **COVER** – The Cover of Vaccination Evaluated Rapidly programme (COVER) evaluates childhood immunisation in England, collating data for children aged 1, 2 and 5. Quarterly data tables are provisional and give an indication of current coverage. Data is collected by financial year.
- **Failsafe Systems** - Failsafe is a back-up mechanism, in addition to usual care, which ensures if something goes wrong in a healthcare pathway, such as for screening or immunisations, processes are in place to (i) identify what is going wrong and (ii) what action follows to ensure a safe outcome.
- **Read Codes** - are the standard clinical terminology system used in General Practice in the UK. It supports detailed clinical encoding of multiple patient phenomena including: occupation; social circumstances; ethnicity and religion; clinical signs, symptoms and observations; laboratory tests and results; diagnoses; diagnostic, therapeutic or surgical procedures performed; and a variety of administrative items (e.g. whether a screening recall has been sent and by what communication modality, or whether an item of service fee has been claimed). It therefore includes but goes significantly beyond the expressivity of a diagnosis coding system.

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