Havering
LONDON BOROUGH

Agenda Item 10

HEALTH & WELLBEING BOARD

Subject Heading:	Health Protection Forum Annual Report 2015
Board Lead:	Dr. Susan Milner
Report Author and contact details:	Louise Dibsdall & Elaine Greenway Public Health Service

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

- ☐ Priority 1: Early help for vulnerable people
- ☐ Priority 2: Improved identification and support for people with dementia
- ☒ Priority 3: Earlier detection of cancer
- ☐ Priority 4: Tackling obesity
- ☐ Priority 5: Better integrated care for the 'frail elderly' population
- ☐ Priority 6: Better integrated care for vulnerable children
- ☒ Priority 7: Reducing avoidable hospital admissions
- ☐ Priority 8: Improve the quality of services to ensure that patient experience and long-term health outcomes are the best they can be

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 what actions are being taken.

On the whole, 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 highlights/issues are:

- Under 12month, 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
- Childhood flu vaccinations are on target, with the exception of the four year old cohort, which is low across London on average
- Uptake of the adult seasonal flu vaccine has not reached its target to date; uptake in the whole of the UK is lower than recommended.

- There is currently better uptake of the bowel cancer screening programme in Havering compared to London (but lower than England), which is likely due to the poor acceptability of the test.
- Prevalence of HIV in Havering is lowest out of all the London boroughs, but many are diagnosed late

Key actions being taken are:

- Havering Public Health Service maintain surveillance of the health protection system
- NHSE have developed an immunisations action plan in partnership with Havering CCG and the council to improve uptake of immunisations and data quality
- GP practices have been reminded by NHSE to undertake call and recall for all immunisations cohorts (seasonal flu as well as routine vaccinations)
- NHSE has chaired monthly flu calls with CCGs and PH teams to give updates and share best practice
- PHE rolled out a national winter campaign which included the flu vaccination programme
- Visits to GP practices have been made by NHSE immunisations leads to support practices:
    - in ensuring they have processes in place to undertake call and recall for children who require immunisation;
    - access to IT support for implementing immunisations reports;
    - ensure failsafe systems are in place.
- NHSE will develop a good practice guide for London and circulate to GP practices
- NHSE and CCG to support practices to ensure that they are registered with SONAR (an information portal) to receive timely pharmacy flu vaccination data.
- NHSE and CCG to support GP practices to identify patients who are carers themselves and invite then to the flu clinic
- NHSE is currently piloting an alternative style of bowel cancer screening test, which is more sensitive than the current standard test, and only requires one stool sample rather than three, which makes the test more acceptable to people.

More people are being tested for HIV in A&E and through antenatal screening. For both HIV and TB, as a result of anticipated changes in our population, the Health Protection Forum is keeping a watching brief on the incidence and prevalence of both HIV and TB.

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

Havering Health Protection Forum Annual Report 2015

1.0 Background

1.1 Purpose

Under the Health and Social Care Act 2012, Local Authorities have enhanced statutory duties for health protection[1]. This Act requires local authorities, through their Director of Public Health, to **seek assurance that proper plans are in place to protect the health of the public**. Health protection as a function seeks to reduce the harm caused by communicable diseases and minimise the health impact from environmental hazards such as chemicals and radiation.

The purpose of this report is to provide assurance and information on arrangements to protect the health of the population of Havering. The following report outlines the statutory duties and responsibilities of the organisations involved in health protection, and particularly the role of the Director of Public Health and Local Authority following the introduction of the Health and Social Care Act 2012. The report also provides an overview of the role and functions of the Health Protection Forum (HPF) and highlights key issues relating to health protection in Havering, including immunisations, screening, infectious diseases, air quality and health aspects of emergency planning and, where necessary, what actions are being taken to strengthen local arrangements.

1.2 Roles and Responsibilities

- **Local Authorities and Director of Public Health** – Local Authorities have a critical role in protecting the health of their population, both in terms of planning to prevent health protection incidents and communicable disease outbreaks arising and in ensuring appropriate responses when things do go wrong. Working alongside Public Health England, who provide the specialist health protection response, advice and support, the local authority's role is to provide surveillance and local leadership for health[2].

  The Director of Public Health (DPH) is the chief officer responsible for seeking and gaining assurance of the local authority's contribution to health protection matters. The DPH and team provide surveillance of the health protection system, including monitoring of communicable disease outbreaks, effectiveness of screening and immunisation programmes, health protection and environmental health issues and incidents, and health emergency planning. Havering's DPH also chairs the Havering Health Protection Forum which is the primary local process for obtaining assurance that health protection arrangements are robust, as outlined below.

- **Public Health England (PHE)** – PHE works with national and local government, industry, and the NHS, to protect and improve the nation's health. It was established on 1 April 2013 to bring together public health specialists from more than 70 organisations into a single public health service. It has a responsibility to deliver the specialist health protection response, including the response to incidents and outbreaks, through the PHE Centres which take on the functions of the former Health Protection Units[3].

- **NHS England (NHSE)** –NHSE is responsible for commissioning routine vaccinations, and the national screening programme, which are key to protecting the health of the population

from infection, and identifying health issues (please refer to appendices A and B for more detail on these).

NHSE has also appointed a lead director for NHS emergency preparedness and response at the Local Resilience Forum (LRF) level (which for Havering is London), and provides necessary support to enable planning and response to emergencies that require NHS resources.

- **Chief Medical Officer (CMO)** – The Chief Medical Officer (CMO) acts as the UK government's principal medical adviser and is the professional head of all directors of public health in local government[4].
- **Havering Clinical Commissioning Group (CCG)** –The CCG's role is to commission most local health services, from cancer care to mental health, hospital operations to prescriptions[5]. From a health protection perspective, they are primarily responsible for monitoring and quality assuring infection control practices in acute and community settings.
- **Care Quality Commission (CQC)** – The CQC inspects health and social care organisations to ensure they are safe, effective, caring, responsive to people's needs and well-led. The safety of patients is paramount, and inspectors examine how risks such as infection control and hygiene practices are identified and mitigated.

1.3 Governance and Local Health Protection Arrangements in Havering

In accordance with national guidance, Havering Council established a Health Protection Forum in 2013, which supports the Director of Public Health in their health protection role: assurance that appropriate arrangements are in place to protect the health of local residents. The Forum provides surveillance of the respective components of the health protection system and challenges the system when risks are identified (Terms of Reference are attached in Appendix C). The organisations represented on the Forum include:

- London Borough of Havering (Environmental Health, Public Health)
- NHS England (NHSE)
- Public Health England (PHE)
- Havering Clinical Commissioning Group (CCG)
- Havering Borough Resilience Forum (BRF)
- North East London Foundation Trust (NELFT)
- Barking, Havering and Redbridge University Hospitals Trust (BHRUT)

The Havering Health Protection Forum meets quarterly and has received reports on health protection topics, including commissioned immunisations programmes; infectious diseases (PHE); pandemic flu; Ebola; children's flu pilot; heatwave planning; and policies and provision for offensive and clinical waste removal.

2.0 Health Protection Main Topics of Focus

On the whole, 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 topics listed below represent the areas of most interest and/or concern to the Health Protection Forum, and most importantly, what is being done about these issues.

2.1 Immunisations

There is a comprehensive programme of routine childhood immunisations that protect babies and children from serious preventable illnesses and vaccinations for adults, including shingles, flu and pneumonia[6]. Additional vaccinations are available to people at specific risk, such as Hepatitis B (Appendix A outlines the full vaccination schedule, Appendix E gives an overview of performance of immunisations and screening[7]).

In 2013, NHSE became responsible for commissioning Immunisation Programmes. Recommendations on which vaccinations to commission in the UK are made by the Joint Committee on Vaccination and Immunisation (JCVI), an independent Departmental Expert Committee and a statutory body[8]. NHSE then commission the routine vaccination programmes, which are delivered locally primarily by GPs, practice nurses, local immunisations teams, and pharmacists (flu only). Immunisations delivery 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.

Throughout a challenging period of transition, the uptake of immunisations in Havering has been largely maintained:

- Under 12 month vaccinations are all very close to, or surpassing the challenging target of 95%, and are all better than the London average.
- The under 2 year old vaccinations are either surpassing the target, or are on par with the England performance (and close to target). NHS England and local practices have plans in place to maintain good performance, and make improvements where possible.
- The under 5 year old vaccinations are also either surpassing the target or are close to the 95% target; Havering's uptake of vaccinations amongst this age group are all higher than that for both London and England.
- Childhood flu vaccinations are on target, with the exception of the four year old cohort, which is low across London on average (see* below for further explanation).
- Seasonal flu vaccinations are on a par with London and England amongst both the under 65 years at clinical risk, and those 65 years and over. NHSE are working with GP practices and pharmacies to deliver plans to increase uptake particularly in those aged 6 months to 65 years clinically at-risk.

*In 2014/15 Havering took part in the national child flu school vaccination pilots for children in reception year (generally aged 4-5 years). 2014/15 was also the first year that the flu programme was nationally rolled out to offer four year olds flu vaccination via GP practices. Four year old children in Havering had the opportunity to receive their flu vaccination from GP practices or in schools. The published data shows flu vaccination data held on GP systems as of week 4 (end of January 2015), but not data held via the school vaccination provider as these data was not published. Therefore, many more Havering children received flu vaccination in 2014/15 than is reported. For 2015/16 the child flu vaccination programme has rolled out nationally which offers school children in years 1 and 2 flu vaccinations in school. Children in reception year are not being vaccinated in school, therefore children of reception year age will go to their GP practice for vaccination. Specific actions taken include:

- GP practices have been reminded by NHSE to undertake call and recall for all cohorts
- NHSE has chaired monthly flu calls with CCGs and PH teams to give updates and share best practice

- PHE rolled out a national winter campaign which included the flu vaccination programme

Historically, uptake of the adult seasonal flu vaccine has been below target across the UK. NHSE have developed an action plan to achieve improvement during the 2015/16 flu season. It is crucial that those in prority groups, including healthcare workers continue to take up the vaccine. Campaigns such as the NHS Employers' 'Flu Fighters' has been promoted to increase uptake of the flu vaccination amongst frontline health and social care workers, including those working in residential care.

Since the recent measles outbreak in Wales, and the discreditation of the research linking the Measles, Mumps and Rubella (MMR) vaccine to autism, MMR uptake (MMR2 by 5 years old by Local Authority) has increased to 90.6% in Havering, higher than both the London (80.1%) and England (88.6%) averages[9].

NHSE and the CCG, with support from Havering Public Health Service, has developed an immunisations action plan with the aim of achieving good uptake. Actions include:

- Visits to GP practices by NHSE immunisations leads to support practices:
    - in ensuring they have processes in place to undertake call and recall for children who require immunisation;
    - access to IT support for implementing immunisations reports;
    - and ensure failsafe systems are in place.
- NHSE will develop a good practice guide and distribute to GP practices
- NHSE and CCG to support practices to ensure that they are registered with SONAR, the information portal, to receive timely pharmacy flu vaccination data.
- NHSE and CCG to support GP practices to identify patients who are carers and invite then to the flu clinic

2.2 Screening

Screening is "a process of identifying apparently healthy people who may be at increased risk of a disease or condition." They can then be offered information, further tests and appropriate treatment to reduce their risk and/or any complications arising from the disease or condition. The NHS runs a comprehensive screening programme for a range of adult cancers, and adult non-cancer conditions, antenatal and newborn screening (Appendix B outlines the full list of 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)[10]. People who are eligible for screening of breast, bowel and cervical cancer receive routine invitations. Every aspect of screening is monitored 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 test[11].

The Health Protection Forum receives a report on all cancer and non-cancer screening programmes (antenatal, newborn, Abdominal Aortic Aneurism (AAA) and Diabetic Eye Screening Programme (DESP)) from NHS England.

- Breast and cervical screening coverage in Havering is better than the average for both London and England.
- There is currently better uptake of the bowel cancer screening programme in Havering compared to London (but lower than England).

Overall, the bowel cancer screening programme has not achieved the level of uptake of other screening programmes, which is most likely attributable to the poor acceptability of the test. NHSE is currently piloting an alternative style of test to potentially improve uptake, which began in November 2015. The Fecal Immunochemical Test (FIT) has a number of advantages over the current screening test, called Faecal Occult Blood Test, or FOBt. The FIT is a more sensitive test than the FOBt and therefore likely to detect more cancers or pre-cancerous polyps. It also only requires one stool sample rather than three, which makes the test more acceptable to people. This will help improve the uptake of screening, currently less than 60%.

Six of Public Health England's population screening programmes focus on ante-natal and newborn screening to ensure a healthy pregnancy for both mum and baby. The majority of tests are delivered on time and meet quality standards. There are 7 tests that the HPF is monitoring, including:

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

The proportion of laboratory request forms for Down's syndrome screening submitted within the recommended timeframe, and newborn and infant physical examination both appear to require some improvement in performance. It should be noted here that there are several mitigating factors to this apparent lower performance – for example, if a parent cancels a screening appointment or does not attend a scheduled appointment the laboratory may as a consequence not be able to process the results of the screen in the recommended time frame. Similarly, although all babies are given a newborn physical examination, not all appeared to have been completed within the recommended 72 hours due to other mitigating factors, including non-attendance at appointments, home births and delays to uploading paperwork. It should be noted that there is good uptake of testing, it is the tight timescales that are not being achieved. The HPF is aware of the actions being taken to improve this.

A new screening programme, a bowel scope, is being introduced for men and women aged 55 years to help prevent bowel cancer. The new one-off test finds and removes any small bowel growths, called polyps, that could eventually turn into cancer. This programme is being introduced for Havering in 2016.

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 provide a weekly report to DsPH on cases of infectious diseases, which form part of the surveillance function of Directors of Public Health. The DPH and team keep close 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, and there are no issues of concern out of the normal expected numbers of cases. This report contains a description below of the infections that are of greatest concern:

2.3.1 HIV

In 2012 (the latest available data), Havering's prevalence of diagnosed HIV was the lowest – and remains the only borough with less than 1 per 1,000 population aged 15-59 years – in London. In Havering, the most important aspect is late diagnosis, in which one in every two people diagnosed with HIV in 2011 were diagnosed late. This is higher than London (44%) and 13th highest of the 31 London boroughs[12].

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 conditions and 6.59% rate of susceptibility for rubella[13]. 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 health[14].

As a result of anticipated changes in our population (6% growth predicted by 2020), primarily due to migration of people from inner to outer London Boroughs, the Health Protection Forum is keeping a watching brief on the incidence and prevalence of HIV. The largest changes in population are expected in South Hornchurch, Brooklands, Harold Wood and Gooshays wards.

2.3.2 Tuberculosis (TB)

Havering continues to have very low rates of TB (11.4 per 100,000 compared with 41.9 per 100,000 for London)[15]. The local TB service continues to treat individuals and trace close contacts at higher risk. At present, NICE guidance includes vaccinating newborn babies who were born in an area of high TB incidence, have one or more parents or grandparents who were born in a high-incidence country, or have a family history of TB in the last 5 years[16]. However, the London Immunisations Board has endorsed a universal offer of neonatal BCG across London, including areas where prevalence is less than 40/100,000. The TB service also works closely with the HIV service, due to the risk of co-infection with both TB and HIV in some communities.

As with HIV, as a result of anticipated changes in our population, primarily due to migration of people from inner to outer London Boroughs, the Health Protection Forum is keeping a watching brief on the incidence and prevalence of both HIV and TB.

2.3.3 Ebola

The recent outbreak of the Ebola virus, which began in March 2014, mainly affected three countries in West Africa: Guinea, Liberia and Sierra Leone. This is the largest known outbreak of Ebola[17] with around 25,200 cases and more than 10,400 deaths reported by the World Health Organization.

The risk of Ebola to the UK remains very low. Whilst the UK expected to see isolated cases of imported Ebola, mainly from affected healthcare workers who were volunteering in Sierra Leone, management and processes in place meant minimal risk of it spreading to the general population. This is due to the high quality of the health care system within England with robust infection control systems and processes, including screening at UK entry points (airports), and disease control systems in place.

During the period, the DPH received weekly reports on any Ebola enquiries or exposed persons from PHE as part of the Notifications of Infectious Diseases (NOIDs) report. The DPH also received the Ebola Top Lines Briefing from the Emergency Planning Service for surveillance and assurance purposes.

2.3.4 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.

Public Health England 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.

In Havering, HCAIs are within expected limits and are being adequately managed through effective infection control practices.

2.3.5 Antimicrobial Resistance

Antibiotic resistance is one of the most significant threats to patients' safety in Europe. It is driven by overusing antibiotics and prescribing them inappropriately. The response to this issue is being led globally by the World Health Organisation, with individual nations responding with their own plans.

The UK Government published its 5-year Anti-Microbial Resistance (AMR) strategy in September 2013, led by DH, DEFRA, and PHE. Public Health England 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 4

(out of 7) important areas of the AMR strategy for England. PHE's Antibiotic Guardian campaign (www.antibioticguardian.com) supports the AMR strategy.

Locally, Outer North East London Antimicrobial Resistance Strategy Group meets quarterly, and Havering is represented on this group via attendance of one of the Public Health Service team. The HPF receives a quarterly update on key issues and progress made by this group.

2.4 Air Quality

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 (NO_2) and Airborne Particulate Matter (PM_{10}) at some locations would not be met by the relevant target date. In Havering the main source of air pollution is road traffic tailpipe emissions, although significant amounts are produced from residential and commercial gas use, industry, construction sites and emissions from outside London.

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

- Mayor's Air Quality Fund (MAQF) Round I: The Council successfully secured funding in 2014 for three years to implement Air Quality Improvements across the Borough, including:
    - creating a 'Pocket Park' – Ludwigshafen Place – on one of the main roundabouts in the Romford Ring Road
    - installation of new trees in Romford Air Quality Hotspots
    - creation of the 'Target Your Trip' Business Pack
    - extension of the air quality monitoring network to include additional diffusion tube locations
    - Air Quality Mesh Monitors and reference monitors
    - a promotional campaign on the use of AirTEXT
- MAQF Round II: The Council placed a bid for further funding for 2016 – 2019 to continue improving Havering's Air Quality.
- Low Emission Neighbourhood: The Council successfully secured £20,000 in order to complete a feasibility study into creating a Low Emission Neighborhood within the Borough. The feasibility study will be used to create a detailed bid which will be submitted in April 2016 with the opportunity to obtain £1 million to then implement the Low Emissions Neighborhood.

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

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.

Under the Civil Contingencies Act (2004), NHS organisations and providers of NHS-funded care need to prepare for and be able to respond to a wide range of incidents that could affect health or patient care, including extreme weather, outbreak of infectious diseases or a major transport accident. Since the introduction of the Health and Social Care Act 2012, there have been a number

of changes in the role of the NHS in emergency planning functions. In the health community, this is referred to as Emergency Preparedness Resilience and Response (EPRR)[18].

Local Health Resilience Partnerships (LHRPs) have now been established to deliver national EPRR strategy in the context of local risks. These bring together the health sector organisations involved in EPRR at the Local Resilience Forum (LRF) level – there is one LHRP for London. Building on existing arrangements for health representation at LRFs, the LHRP will be a forum for coordination, joint working and planning for emergency preparedness and response by all relevant specific health bodies. Through the London Local Health Resilience Partnership (LLHRP), London NHS emergency preparedness plans are due to be tested in Spring 2016. The LLHRP is also currently developing an EPRR training, exercising and lessons strategy to ensure emergency plans are prepared and tested.

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

It should be noted that there are structural changes anticipated. As part of its change programme, "Securing Our Future", PHE is reviewing its local health protection functions. The purpose of the review is to support PHE's Centre Directors in the re-design of the local health protection function as part of the wider design of the new PHE Centres. The strengthened role of the new PHE Centres is designed to further improve their ability to support and respond to local health priorities and by gaining influence with local government, to translate PHE priorities into local action and to ensure that local perspectives and priorities are both understood and taken into account nationally.

Appendix A

The complete routine immunisation schedule from summer 2015

When	Diseases protected against	Vaccine given	Site[1]
Two months old	Diphtheria, tetanus, pertussis (whooping cough), polio and *Haemophilus influenzae* type b (Hib)	DTaP/IPV/Hib (Pediacel or Infanrix IPV Hib)[2]	Thigh
	Pneumococcal disease	PCV (Prevenar 13)	Thigh
	Meningococcal group B disease (MenB)	MenB (Bexsero) (from 1 September 2015)	Left thigh
	Rotavirus	Rotavirus (Rotarix)	By mouth
Three months old	Diphtheria, tetanus, pertussis, polio and Hib	DTaP/IPV/Hib (Pediacel or Infanrix IPV Hib)	Thigh
	Meningococcal group C disease (MenC)	Men C (NeisVac-C)[2]	Thigh
	Rotavirus	Rotavirus (Rotarix)	By mouth
Four months old	Diphtheria, tetanus, pertussis, polio and Hib	DTaP/IPV/Hib (Pediacel or Infanrix IPV Hib)	Thigh
	MenB	MenB (Bexsero)	Left thigh
	Pneumococcal disease	PCV (Prevenar 13)	Thigh
Between 12 and 13 months old – within a month of the first birthday	Hib/MenC	Hib/MenC (Menitorix)	Upper arm/thigh
	Pneumococcal disease	PCV (Prevenar 13)	Upper arm/thigh
	Measles, mumps and rubella (German measles)	MMR (Priorix or MMR VaxPRO)[2]	Upper arm/thigh
	MenB	MenB (Bexsero) booster	Left thigh
Two, three and four years old[3] and children in school years 1 and 2	Influenza[4] (from September)	Flu nasal spray (Fluenz Tetra) (annual) (if Fluenz is contraindicated and child is in clinical risk group, use inactivated flu vaccine)	Nostrils (Upper arm)
Three years four months old or soon after	Diphtheria, tetanus, pertussis and polio	DTaP/IPV (Infanrix IPV or Repevax)[2]	Upper arm
	Measles, mumps and rubella	MMR (Priorix or MMR VaxPRO) (check first dose has been given)[2]	Upper arm
Girls aged 12 to 13 years old	Cervical cancer caused by human papillomavirus types 16 and 18 (and genital warts caused by types 6 and 11)	HPV (Gardasil)	Upper arm
Around 14 years old	Tetanus, diphtheria and polio	Td/IPV (Revaxis), and check MMR status	Upper arm
	MenC and Meningococcal group W disease (MenW)[5]	MenACWY (Nimenrix, Menveo)[2]	Upper arm
65 years old	Pneumococcal disease	PPV Pneumococcal polysaccharide vaccine (Pneumovax II)	Upper arm
65 years of age and older	Influenza[4]	Flu injection (annual)	Upper arm
70 years old	Shingles (from September)	Shingles (Zostavax)	Upper arm (subcutaneous)

Immunisations for those at risk[6]

At birth, 1 month old, 2 months old and 12 months old	Hepatitis B	Hep B	Thigh
At birth	Tuberculosis	BCG	Upper arm (intradermal)
Six months up to two years	Influenza[4]	Inactivated flu vaccine (annual)	Upper arm/thigh
Two years up to under 65 years	Pneumococcal disease	PPV Pneumococcal polysaccharide vaccine (Pneumovax II)	Upper arm
Over two up to less than 18 years	Influenza[4] (from September)	Flu nasal spray (Fluenz Tetra) (annual) (if Fluenz is contraindicated, use inactivated flu vaccine)	Nostrils (Upper arm)
13 to 18 years	MenW[5]	MenACWY	Upper arm
18 up to under 65 years	Influenza[4]	Inactivated flu vaccine (annual)	Upper arm
At any stage of pregnancy	Influenza[8]	Inactivated flu vaccine	Upper arm
From 28 weeks of pregnancy[7]	Pertussis	dTaP/IPV (Boostrix-IPV)[8]	Upper arm

[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 vaccines are given intramuscularly unless stated otherwise.

[2] Where two or more products to protect against the same disease are available, it may on occasion be necessary to substitute an alternative brand.

[3] This is defined as children aged two, three or four year (but not five years) on 31 August 2015.

[4] The vaccine is given prior to the flu season – usually in September and October.

[5] This vaccine will be delivered in a phased catch-up programme mainly in schools between August 2015 and 2017

[6] See individual chapters of the Green Book for clinical risk groups.

[7] See CMO letter of October 2012.

[8] Between September and March or later at GP's clinical discretion.

Immunisation
The safest way to protect children and adults

NHS

Vaccines for the routine immunisation schedule from summer 2015

When	Diseases protected against	Vaccine given
Two months old	Diphtheria, tetanus, pertussis (whooping cough), polio and *Haemophilus influenzae* type b (Hib)	**Pediacel** or **Infanrix IPV Hib** (DTaP/IPV/Hib)
	Pneumococcal disease	**Prevenar 13** (PCV)
	Rotavirus	**Rotarix** (Rotavirus)
	Meningococcal group B disease (MenB)	**Bexsero** (MenB)
Three months old	Diphtheria, tetanus, pertussis, polio and Hib	**Pediacel** or **Infanrix IPV Hib** (DTaP/IPV/Hib)
	Meningococcal group C disease (MenC)	**NeisVac-C** (Men C)
	Rotavirus	**Rotarix** (Rotavirus)
Four months old	Diphtheria, tetanus, pertussis, polio and Hib	**Pediacel** or **Infanrix IPV Hib** (DTaP/IPV/Hib)
	Pneumococcal disease	**Prevenar 13** (PCV)
	MenB	**Bexsero** (MenB)
Between 12 and 13 months old – within a month of the first birthday	Hib/MenC	**Menitorix** (Hib/MenC)
	Pneumococcal disease	**Prevenar 13** (PCV)
	Measles, mumps and rubella (German measles)	**Priorix** or **MMR VaxPRO** (MMR)
	MenB	**Bexsero** (MenB) booster
Two, three and four years old and children in school years 1 and 2	Influenza	**Fluenz Tetra** (Flu nasal spray) (annual) (if Fluenz is contraindicated and child is in clinical risk group, use inactivated flu vaccine)
Three years four months old or soon after	Diphtheria, tetanus, pertussis and polio	**Infanrix IPV** (DTaP/IPV) or **Repevax**[2]
	Measles, mumps and rubella	**Priorix** or **MMR VaxPRO** (MMR) (check first dose has been given)
Girls aged 12 to 13 years old	Cervical cancer caused by human papillomavirus types 16 and 18 (and genital warts caused by types 6 and 11)	**Gardasil** (HPV)
Around 14 years old	Tetanus, diphtheria and polio	**Revaxis** (Td/IPV), and check MMR status
	MenC and Meningococcal group W disease (MenW)[5]	**Nimenrix** or **Menveo** (MenACWY)[5]
At any stage of pregnancy	Influenza	Influenza injection during the flu season
From 28 weeks of pregnancy[7]	Pertussis	**Boostrix-IPV**[8]
65 years old	Pneumococcal disease	**Pneumovax II** (PPV Pneumococcal polysaccharide vaccine)
65 years of age and older	Influenza	Flu injection (annual)
70 years old	Shingles	**Zostavax** (Shingles)

*NB Where two or more products to protect against the same disease are available, it may, on occasion be necessary to substitute an alternative brand.

All these vaccines, including flu vaccine for all eligible children but excepting flu vaccine for healthy adults aged 65 and over, and Pneumovax II for those aged 65, are available free of charge at **www.ImmForm.dh.gov.uk**

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NHS

Appendix B

National Screening Programmes[1]

- 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
    - diaphragamtaic 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, Hepatits 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 conditions that can lead to serious illness, development problems and even death. 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.

[1] HM Government, NHS Screening Programmes. Available on: https://www.gov.uk/topic/population-screening-programmes

- 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 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. The screening process is not perfect and in every programme there are a number of false positives and false negatives. 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 C

Havering Health Protection Forum

Terms of Reference (Revised June 2015)

1. Introduction

The implementation of the Health and Social Care Act 2012 led to the transfer of responsibility for the delivery of local Public Health Services to the London Borough of Havering. The Act required local authorities, through their Director of Public Health, to **seek assurance that proper plans are in place to protect the health of the public**. These new arrangements were expected to build on existing partnerships, leading to a streamlined, integrated process for the prevention, planning and response to health protection incidents and events[2].

In order to put the legislation into practice and enable Local Authorities to discharge their new responsibilities, the Department of Health suggested that Local Authorities create a local forum to facilitate, review and instigate actions to protect the health of the local population. Within this context, Havering Council has established a Health Protection Forum which supports the Director of Public Health in their role of leading the response, planning and preparedness to health protection challenges.

These Terms of Reference define the aims and objectives of the Forum, its membership, and governance arrangements.

2. Aim of the Health Protection Forum

To enable the Director of Public Health to assure the Health and Wellbeing Board that appropriate arrangements are in place to protect the health of local residents.

3. Scope of the Health Protection Forum

The forum provides surveillance of the respective components of the health protection system and offers challenge to the system when risks are identified. Topics that are within the scope of the forum include, but are not restricted to:

- Health emergency planning, resilience and response
- Infectious disease prevention and control e.g. pandemic influenza, tuberculosis (TB), Blood Borne Viruses (BBV), Sexually Transmitted Infections (STIs)
- Health Care Associated Infections (HCAI)
- Immunisation programmes
- National screening programmes
- Environmental hazards

The delivery of these health protection functions in this new environment requires effective working relationships which are underpinned by a legislative framework that puts a duty on new bodies such as the Clinical Commissioning Groups (CCGs) and NHS England to cooperate with Local Authorities in respect of health and wellbeing.

[2] http://www.dh.gov.uk/health/2012/08/health-protection-guidance/

4. The objectives are to:

- seek and receive assurance that appropriate measures are in place to protect the health of the population
- liaise with the Borough Resilience Forum to ensure proper plans are in place to respond to major incidents and emergencies
- ensure the London Borough of Havering responds appropriately to local outbreaks of infectious diseases / environmental hazard (not triggering a major incident)
- assess risks to the health of the local population as identified in the Joint Strategic Needs Assessment and Borough Risk Register and escalate as appropriate
- assess the performance of:
    - healthcare providers with regard to levels of health care associated infections
    - cancer and non-cancer screening programmes
    - immunisation programmes and to raise any issues of concern with the relevant Commissioners
- challenge the health protection delivery systems when necessary in order to protect the health of the community
- produce an annual health protection report to the Havering Health and Wellbeing Board (HWB)
- ensure health protection issues are raised in the appropriate internal and external fora including the Borough Resilience Forum
- establish task and finish groups if required

5. Governance Arrangements

The Health Protection Forum reports to Havering Health and Wellbeing Board. (See Appendix 1.)

6. Secretariat

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

7. Regularity of Meetings

The Forum will meet quarterly

8. 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 Committee/Forum, and seconded by another member.

9. Membership:

Chair – Director of Public Health, LBH
Deputy Chair – Consultant in Public Health, LBH
Havering Clinical Commissioning Group, HCCG
Public Health England, PHE
NHS England, NHSE

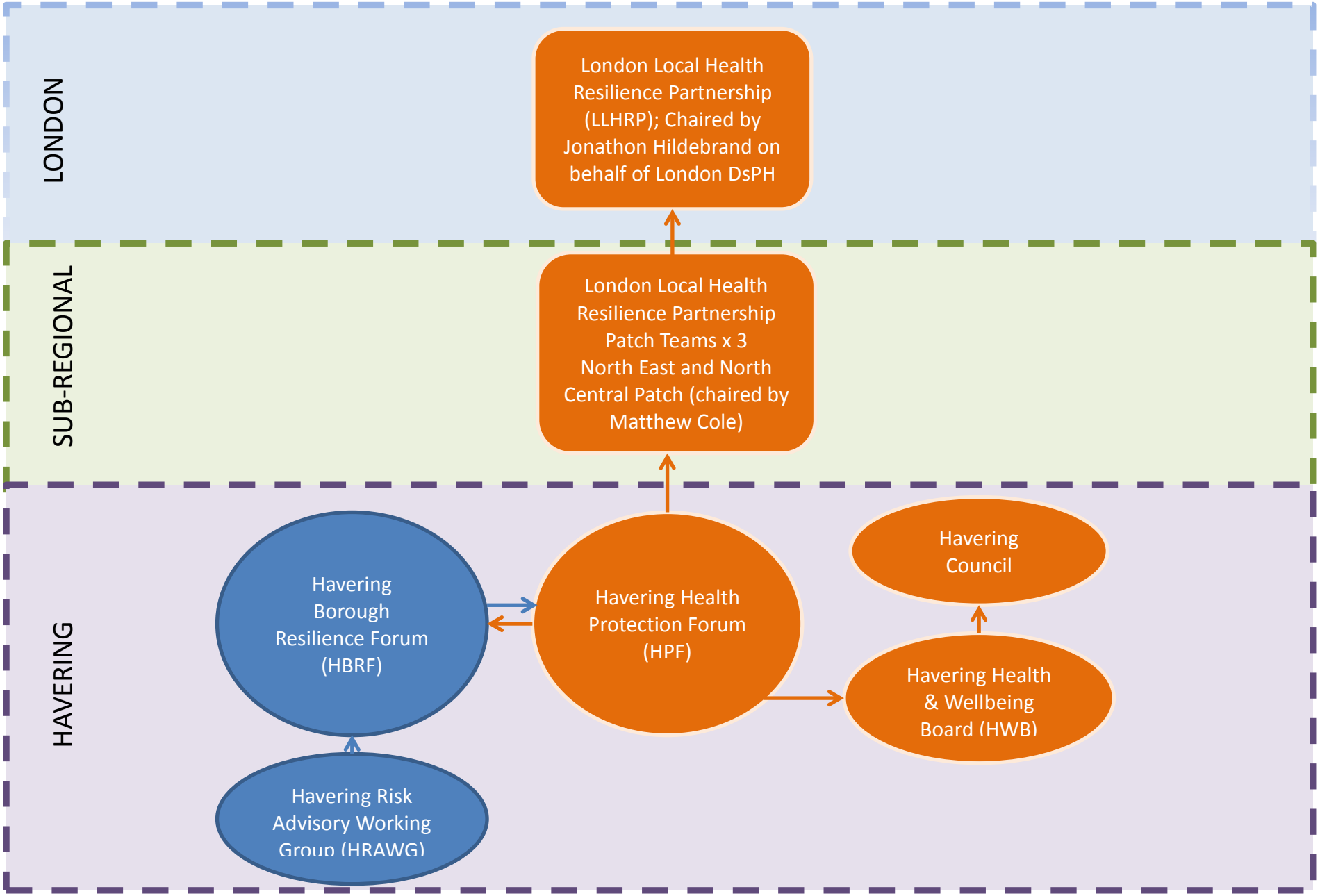
Borough Resilience Forum Chair, BRF
Environmental Health, LBH
Barking, Havering and Redbridge University Trust, BHRUT
North East London Foundation Trust, NELFT
North East London Commissioning Support Unit, NELCSU
Public Health Strategist, LBH
Public Health Information Analyst, LBH

Other directorates, services and organisations will be co-opted on to the Forum as necessary.

Terms of Reference agreed on …….. (date)

Signed …… (Chair)

Appendix 1: Governance Structure of Havering Health Protection Forum



Appendix D

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'

Appendix E

Havering Screening and Immunisation Performance compared with London and England

Target Group	Immunisation / Screening Programme	Target	Havering	London	England	Comments / What are we doing about it?
Antenatal immunisation & infectious disease screening (Pregnant Women & newborn)	Pertussis vaccination	100% of identified cohort[19]	63.8%	46.6%	57.7%	Latest available monthly data is September 2015[20]
	Seasonal influenza (flu) vaccination	75%	36.3%	39.9%	44.1%	Data 1st September 2014 to 31 January 2015[21]. NHSE have developed an action plan to achieve improvement during this year's flu season September 2015 to February 2016.
	HIV screening coverage	Acceptable ≥ 90% Achievable ≥ 95%	99.7%	99.8%	99.0%	Latest available data for BHRUT Q1 2015-16 (April to June)[22].
	HepB screening	Acceptable ≥ 70% Achievable ≥ 90%	N/A	70.2%	73.2%	Latest available data for BHRUT Q1 2015-16 (April to June)[23]. No data available specifically for BHRUT (Havering); average in both London and England are just meeting acceptable levels.
	Down's Syndrome screening	Acceptable ≥ 97% Achievable ≥ 100%	92.9%	97.6%	96.3%	Latest available data for BHRUT Q1 2015-16 (April to June)[24].
	Antenatal sickle cell & thalassaemia screening	Acceptable ≥ 95% Achievable ≥ 99%	99.7%	99.8%	99.1%	Latest available data for BHRUT Q1 2015-16 (April to June)[25].
Newborn Screening	Newborn Hearing screening	Acceptable ≥ 95% Achievable ≥ 99.5%	96.9%	97.5%	98.4%	Latest available data for BHRUT Q1 2015-16 (April to June)[26].
	Newborn and infant physical examination	Acceptable ≥ 95% Achievable ≥ 99.5%	N/A	90.5%	94.6%	Latest available data for BHRUT Q1 2015-16 (April to June)[27]. No return of data from BHRUT
	Newborn bloodspot screening	Acceptable ≥ 95% Achievable ≥ 99.9%	98.1%	96.6%	95.5%	Latest available data for BHRUT Q1 2015-16 (April to June)[28].
Routine Childhood Immunisations by 12 months old	DTaP/iPV/Hib3	95%	94.3%	90.2%	93.5%	Latest available COVER data Q2 2015-16 (July to September 2015)[29].
	Men C	95%	96.1%	92.2%	94.9%	Latest available COVER data Q2 2015-16 (July to September 2015)[30].
	PCV2	95%	93.9%	90.0%	93.5%	Latest available COVER data Q2 2015-16 (July to September 2015)[31].

Target Group	Immunisation / Screening Programme	Target	Havering	London	England	Comments / What are we doing about it?
	Rotavirus[32]	95%	N/A	85.4%	88.4%	Latest available COVER data Q2 2015-16 (July to September 2015)[33].No data available specifically for Havering
Routine Childhood Immunisations by 2 years old	DTaP/iPV/Hib3	95%	96.0%	93.0%	95.4%	Latest available COVER data Q2 2015-16 (July to September 2015)[34].
	Hib/MenC	95%	92.5%	86.4%	91.8%	Latest available COVER data Q2 2015-16 (July to September 2015)[35].NHSE have action plan to improve uptake.
	PCV2	95%	93.2%	86.5%	92.1%	Latest available COVER data Q2 2015-16 (July to September 2015)[36].NHSE have action plan to improve uptake.
	MMR1	95%	92.4%	86.0%	91.5%	Latest available COVER data Q2 2015-16 (July to September 2015)[37]. Performance in uptake of MMR2 in under 2 years improving.
Routine Childhood Immunisations by 5 years old	DTaP/iPV/Hib3	95%	96.9%	93.2%	95.9%	Latest available COVER data Q2 2015-16 (July to September 2015)[38].
	MMR1	95%	95.4%	91.2%	94.5%	Latest available COVER data Q2 2015-16 (July to September 2015)[39].
	MMR2	95%	88.7%	80.5%	87.9%	Latest available COVER data Q2 2015-16 (July to September 2015)[40].Uptake of MMR gradually improving nationally following the damage caused by the (now discredited) article by Andrew Wakefield
	DTaP/Hib booster	95%	89.6%	79.8%	87.9%	Latest available COVER data Q2 2015-16 (July to September 2015)[41].
	Hib/MenC booster	95%	95.2%	89.3%	93.3%	Latest available COVER data Q2 2015-16 (July to September 2015)[42].
Childhood Flu Vaccinations	2 Years Old	30-40%	30.7%	30.3%	38.5%	Latest published data for 2014-15 flu season 1st September 2014 to 31st January 2015[43]. Aim is for disruption in transmission of flu rather than achieving herd immunity hence target of 30-40%.
	3 Years Old	30-40%	34.8%	32.7%	41.3%	Latest published data for 2014-15 flu season 1st September 2014 to 31st January 2015[44].
	4 Years Old	30-40%	21.6%	23.6%	32.9%	Latest published data for 2014-15 flu season 1st September 2014 to 31st January 2015[45]. NHSE have included actions to improve flu vaccination amongst 4-year olds in their immunisations action plan for Havering.
Under 65	Seasonal flu	75%	47.5%	49.8%	50.3%	Latest published data for 2014-15 flu season 1st September 2014 to 31st

Target Group	Immunisation / Screening Programme	Target	Havering	London	England	Comments / What are we doing about it?
years at risk	vaccination					January 2015[46].NHSE are including this in their immunisations action plan for improvement.
	Cervical Cancer Screening programme	80%	76.3%	68.4%	73.5%	Latest available data from Public Health Outcomes Framework (PHOF) 2015[47].
	Breast Cancer Screening programme	80%	78.7%	68.3%	75.4%	Latest available data from PHOF 2015[48].
	Bowel Cancer Screening	100% of those in age range; 90% invited to be sent a test kit	50.6%	47.8%	57.1%	Latest available data from PHOF 2015[49].
Over 65 years	Seasonal flu vaccination	75%	70.2%	69.2%	72.7%	Latest published data for 2014-15 flu season 1st September 2014 to 31st January 2015[50].
	Shingles vaccination[51]	No set national target	50.8%	48.8%	59.0%	Latest available data 1st September 2014 to 31st August 2015. Data covers routine cohort only (age 70)[5253]
	Polysaccharide Pneumococcal vaccination (PPV)	No set national target	67.3%	65.0%	69.8%	Latest available data April 2014 to March 2015[54].
	Diabetic Eye Screening (DES)	Acceptable ≥ 70% Achievable ≥ 80%	78.7%	81.7%	82.8%	Latest available data Q1 2015-16 for Havering DES programme[55].
	Abdominal aortic aneurysms screening (AAA)	Acceptable ≥ 22.5% Achievable ≥ 25%	59.7%	39.0%	32.9%	Latest available data Q1 2015-16for North East London Cohort[56]. Approximately 25% of cohort is expected to be offered screening per quarter, which is aggregated annually.

References

[1] Department of Health (2013). *Protecting the health of the local population: the new health protection duty of local authorities under the Local Authorities (Public Health Functions and Entry to Premises by Local Healthwatch Representatives) Regulations 2013*. London, Department of Health. Note - These Regulations are made under section 6C of the National Health Service Act 2006 ("NHS Act 2006") (as inserted by section 18 of the Health and Social Care Act 2012) Available on: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/199773/Health_Protection_in_Local_Authorities_Final.pdf

[2] Department of Health, Public Health England (2013) *Health Protection in Local Government.* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/199773/Health_Protection_in_Local_Authorities_Final.pdf

[3] Public Health England. https://www.gov.uk/government/organisations/public-health-england/about

[4] Department of Health. https://www.gov.uk/government/people/sally-davies

[5] Havering CCG. http://www.haveringccg.nhs.uk/About-us/

[6] Public Health England (2015). https://www.gov.uk/government/collections/immunisation

[7] https://www.gov.uk/government/publications/the-complete-routine-immunisation-schedule

[8] Minutes of JCVI available on: https://www.gov.uk/government/policy-advisory-groups/joint-committee-on-vaccination-and-immunisation

[9] Public Health England (2015). Vaccination Coverage Statistics, England, January to March 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/452039/COVER_Q14_4_StatisticalTables_20150624_v6.xlsx

[10] http://www.cancerscreening.nhs.uk/

[11] NHS Cancer Screening Programmes (2015). Prostate Cancer Risk Management http://www.cancerscreening.nhs.uk/prostate/index.html

[12] London Borough of Havering (2015). *JSNA Sexual Health Chapter 2015*. (Data Sources: Public Health England) http://www.haveringdata.net/resource/view?resourceID=SexualHealthChapterTwentyFifteen

[13] Public Health England (2014). *National Antenatal Infections Screening Monitoring Data Tables: England 2005 to 2013.* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/375701/NAISM_Data_Tables_2014_v2.pdf

[14] Center for Disease Control and Prevention (2013). *Prevention Benefits of HIV Treatment.* http://www.cdc.gov/hiv/prevention/research/tap/

[15] Public Health England (2013). Press Release. https://www.google.co.uk/url?url=https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/231016/TB_2013_annual_report_London_press_release.pdf&rct=j&frm=1&q=&esrc=s&sa=U&ved=0CBQQFjAAahUKEwjcosOpibPHAhVHNhoKHZIrB1k&usg=AFQjCNGNPY8Vo0VPPZ81YrcKH4tFE4HiMA

[16] National Institute for Health and Care Excellence (NICE) (2011). Preventing the Spread of Tuberculosis by BCG Vaccination. http://pathways.nice.org.uk/pathways/tuberculosis/preventing-the-spread-of-tuberculosis-by-bcg-vaccination#content=view-node%3Anodes-neonates

[17] NHS Choices (2015). Ebola Virus Disease. Published on: http://www.nhs.uk/conditions/ebola-virus/Pages/Ebola-virus.aspx (accessed 21/04/15)

[18] http://www.england.nhs.uk/ourwork/eprr/

[19] PHE (2014) Service Specification No. 1A: Pertussis pregnant women immunisation programme. London, PHE. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/401703/1516_No01A_MaternalPertussis_Immunisation_Programme_FINAL.pdf

[20] Public Health England (2015). Prenatal Pertussis coverage by Area Team and CCG: England April to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/481016/PrenatalPertussis_Monthly_Apr15-Sep15_data_by_CCG_AT_with_numerators_and_denominators_for_reporting_practices.xlsx

[21] Public Health England (2015). Seasonal flu vaccine uptake in GP patients: Final data from 1st September 2014 to 31st January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/428971/Seasonal_Flu_Jan15_acc2.pdf

[22] Public Health England (2015). NHS Screening Programmes: Key performance indicator (KPI) data reports for NHS population screening programmes for the 2015 to 2016 programme year.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485593/Q1_2015-16_Publication_KPI_data_V1.0_NF.xlsx

[23] Public Health England (2015). NHS Screening Programmes: Key performance indicator (KPI) data reports for NHS population screening programmes for the 2015 to 2016 programme year. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485593/Q1_2015-16_Publication_KPI_data_V1.0_NF.xlsx

[24] Public Health England (2015). NHS Screening Programmes: Key performance indicator (KPI) data reports for NHS population screening programmes for the 2015 to 2016 programme year. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485593/Q1_2015-16_Publication_KPI_data_V1.0_NF.xlsx

[25] Public Health England (2015). NHS Screening Programmes: Key performance indicator (KPI) data reports for NHS population screening programmes for the 2015 to 2016 programme year. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485593/Q1_2015-16_Publication_KPI_data_V1.0_NF.xlsx

[26] Public Health England (2015). NHS Screening Programmes: Key performance indicator (KPI) data reports for NHS population screening programmes for the 2015 to 2016 programme year. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485593/Q1_2015-16_Publication_KPI_data_V1.0_NF.xlsx

[27] Public Health England (2015). NHS Screening Programmes: Key performance indicator (KPI) data reports for NHS population screening programmes for the 2015 to 2016 programme year. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485593/Q1_2015-16_Publication_KPI_data_V1.0_NF.xlsx

[28] Public Health England (2015). NHS Screening Programmes: Key performance indicator (KPI) data reports for NHS population screening programmes for the 2015 to 2016 programme year. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485593/Q1_2015-16_Publication_KPI_data_V1.0_NF.xlsx

[29] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StaticalTables_v8.xlsx

[30] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StaticalTables_v8.xlsx

[31] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StaticalTables_v8.xlsx

[32] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440456/RotavirusGatewayFinalVersion.pdf

[33] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StaticalTables_v8.xlsx

[34] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StaticalTables_v8.xlsx

[35] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StaticalTables_v8.xlsx

[36] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StaticalTables_v8.xlsx

[37] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StaticalTables_v8.xlsx

[38] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StaticalTables_v8.xlsx

[39] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StatisticalTables_v8.xlsx
[40] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StatisticalTables_v8.xlsx
[41] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StatisticalTables_v8.xlsx
[42] Public Health England (2015). Vaccination Coverage Statistics (COVER): England, July to September 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487364/COVER_Q15_2_StatisticalTables_v8.xlsx
[43] Public Health England (2015). Seasonal flu vaccine uptake in GP patients: Final Data 1st September 2014 to 31st January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/428971/Seasonal_Flu_Jan15_acc2.pdf
[44] Public Health England (2015). Seasonal flu vaccine uptake in GP patients: Final Data 1st September 2014 to 31st January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/428971/Seasonal_Flu_Jan15_acc2.pdf
[45] Public Health England (2015). Seasonal flu vaccine uptake in GP patients: Final Data 1st September 2014 to 31st January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/428971/Seasonal_Flu_Jan15_acc2.pdf
[46] Public Health England (2015). Seasonal flu vaccine uptake in GP patients: Final Data 1st September 2014 to 31st January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/428971/Seasonal_Flu_Jan15_acc2.pdf
[47] http://www.phoutcomes.info/public-health-outcomes-framework#page/0/gid/1000042/pat/6/par/E12000007/ati/102/are/E09000002/iid/90362/age/1/sex/1
[48] http://www.phoutcomes.info/public-health-outcomes-framework#page/0/gid/1000042/pat/6/par/E12000007/ati/102/are/E09000002/iid/90362/age/1/sex/1
[49] http://www.phoutcomes.info/public-health-outcomes-framework#page/0/gid/1000042/pat/6/par/E12000007/ati/102/are/E09000002/iid/90362/age/1/sex/1
[50] Public Health England (2015). Seasonal flu vaccine uptake in GP patients: Final Data 1st September 2014 to 31st January 2015. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/428971/Seasonal_Flu_Jan15_acc2.pdf
[51] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/448407/hpr2615_shngls.pdf
[52] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/482405/Shingles_annual_2013-15_data_by_CCG_LA_with_numerators_and_denominators_for_reporting_practices.xlsx
[53] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/480254/Shingles_annual_14.15.pdf
[54] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/450999/PPV_tables_vaccine_coverage_estimates_March_2015_V3.xlsx
[55] Public Health England (2015). NHS Screening Programmes: Key performance indicator (KPI) data reports for NHS population screening programmes for the 2015 to 2016 programme year. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485593/Q1_2015-16_Publication_KPI_data_V1.0_NF.xlsx
[56] Public Health England (2015). NHS Screening Programmes: Key performance indicator (KPI) data reports for NHS population screening programmes for the 2015 to 2016 programme year. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485593/Q1_2015-16_Publication_KPI_data_V1.0_NF.xlsx