Health Protection

Introduction

Health Protection involves the planning, surveillance and response to incidence and outbreaks of disease. It prevents and reduces the harm caused by communicable diseases and minimises the health impact from environmental hazards such as chemicals and radiation. It also includes the delivery of major programmes such as national immunisation programmes and the provision of health services to diagnose and treat infectious diseases.

The Local Authorities Regulations, 2013 explains the new health protection duty of local authorities. These regulations are made under section 6C of the "NHS Act 2006" (as inserted by section 18 of the Health and Social Care Act 2012). This came into force on the 1st April 2013:

i. The Health Protection team, on behalf of the Director of Public Health (DPH) is responsible for the Local Authorities' contribution to health protection matters including the response to incidents and emergencies. Public Health England (PHE) will provide specialist support and have a complementary role to play. Both PHE and Public Health in the Local Authority will work as a single unit.

ii. NHS organisations including NHS England (NHSE) and our local Clinical Commissioning Group (CCG) have a legal responsibility under the NHS ACT 2006 to mobilise resources to manage incidents and emergencies. They also have a legal duty to co-operate with Local Authority Public Health in delivering national and local health protection priorities.

The role of Health Protection involves:

i. Planning and responding to incidents and emergencies;
ii. Surveillance of communicable and notifiable diseases;
iii. Reduction of detriment due to communicable and non-communicable diseases and prevention of infection and infectious diseases;
iv. Minimising the health impact of environmental hazards; and
v. Reducing premature mortality and morbidity by improving environmental sustainability.

The role of Health Protection begins from the day life is conceived until the end stage of life. Health Protection issues include:

i. Vaccine preventable diseases (measles, mumps, rubella, human papillomavirus),
ii. Gastrointestinal diseases (food poisoning notifications, food hygiene standards),
iii. Respiratory diseases (tuberculosis, pneumococcal disease, seasonal flu, asthma),
iv. Hepatitis,
v. Sexually transmitted infections (chlamydia, HIV) and
vi. Environmental hazards (radon, skin cancer, air pollution, water quality)

Since 1st April 2013, NHSE have been responsible for the local commissioning of screening and immunisation services through public health commissioning teams in each of its 27 Area Teams. Bedford Borough Council is part of the South Midlands & Hertfordshire (SMH) NHSE Area Team. Public Health England (PHE) is responsible for providing expert quality assurance of the screening and immunisation services through the specialist national screening teams and staff who previously worked for the Health Protection Agency. Bedford Borough Council is part of the PHE Midlands and East of England region and the East of England Centre.

Locally, the DPH has a duty to ensure plans are in place to protect their population including protection through screening and immunisation. Public Health provides independent scrutiny and challenge of the plans of NHSE, PHE and providers. PHE supports the DPH to hold NHSE to account through the provision of data and information on performance against standards. Directors of Public Health (DsPH) need to assure themselves that the combined plans of all these organisations are delivering effective screening and immunisation programmes to their local populations.

This chapter includes our current priorities in childhood and adult immunisation; screening of infectious diseases; Hepatitis B and C; Tuberculosis and Health care acquired infections. The status of Chlamydia and HIV are included in the chapter on sexual health. Sustainability, carbon management and the health impact of environmental hazards are included in the chapter on healthy and sustainable living.

Children

Antenatal Screening and newborn screenings

All pregnant women in Bedfordshire are offered antenatal screening for HIV infection, Hepatitis B infection, Syphilis infection and susceptibility to Rubella infection. The screening programme aims to ensure that women who screen as positive are offered appropriate assessment and management of their condition and to reduce the risk of mother-to-child transmission. The timely identification of babies born to Hepatitis B

positive mothers helps to ensure that babies receive the recommended immunisation doses to protect them against infection. Identifying women susceptible to rubella infection during Antenatal Screening allows for immunisation to be obtained prior to any subsequent pregnancy.

In Bedford Borough approximately 97% of pregnant women access maternity services at Bedford Hospital and the remaining 3% access care at surrounding hospitals.

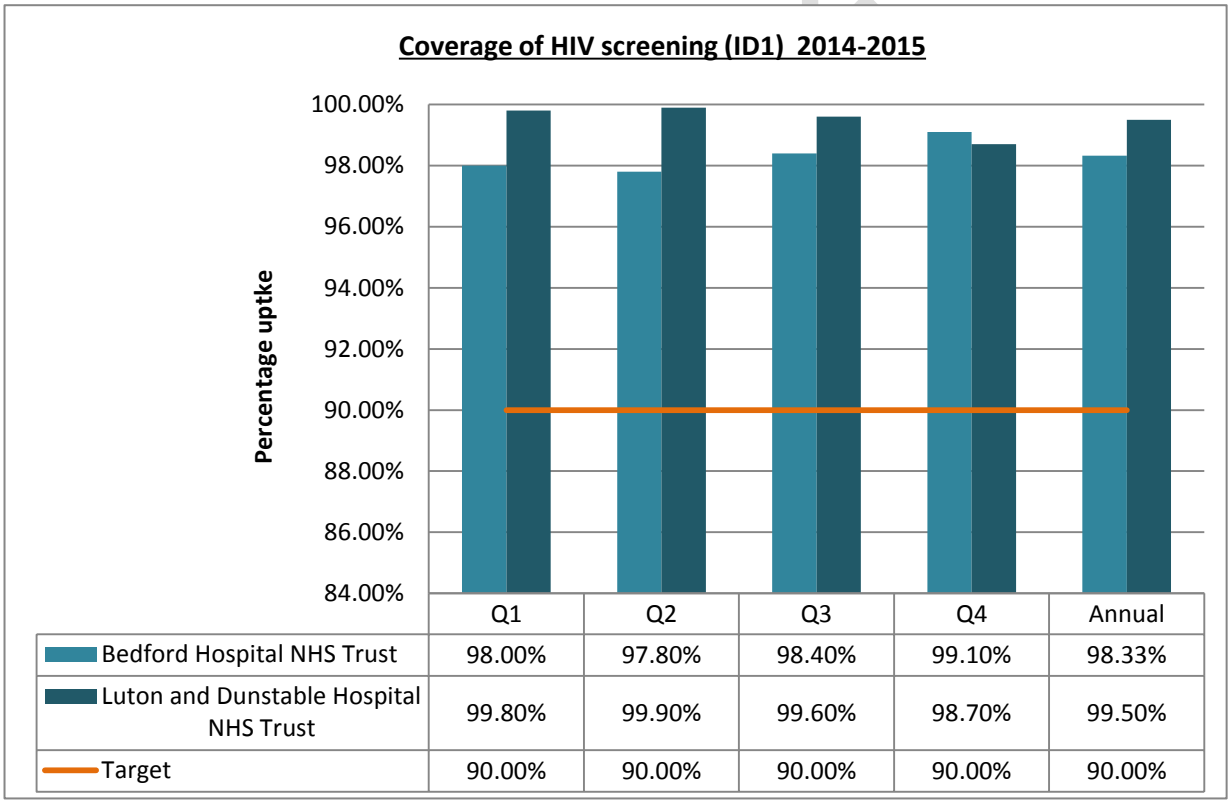
What do we know? Facts, Figure and Trends

Two Key Performance Indicators (KPIs) measure the Screening for Infectious Diseases in the Pregnancy programme quarterly and annually – 'HIV coverage' and 'Timely referral of hepatitis B positive women for specialist assessment'.

Screening for HIV

A national target to achieve a 90% uptake of antenatal screening for HIV is in place across maternity services. Figure 1 shows the % coverage of HIV screening (ID1) in Bedford Hospital Trust and Luton & Dunstable Hospital.

Figure1: Antenatal infectious disease screening (ID1)– 'HIV coverage' 2014/15



	Q1	Q2	Q3	Q4	Annual
Bedford Hospital NHS Trust	98.00%	97.80%	98.40%	99.10%	98.33%
Luton and Dunstable Hospital NHS Trust	99.80%	99.90%	99.60%	98.70%	99.50%
Target	90.00%	90.00%	90.00%	90.00%	90.00%

Source: Bedfordshire DPH Screening and Immunisation Programme Report (September 2015). (Data for IDPS is currently available by Acute Trust only. Data relates to screening uptake and outcomes for all pregnant women accessing maternity services at Bedford Hospital and the Luton & Dunstable Hospital, not Bedfordshire women in isolation).

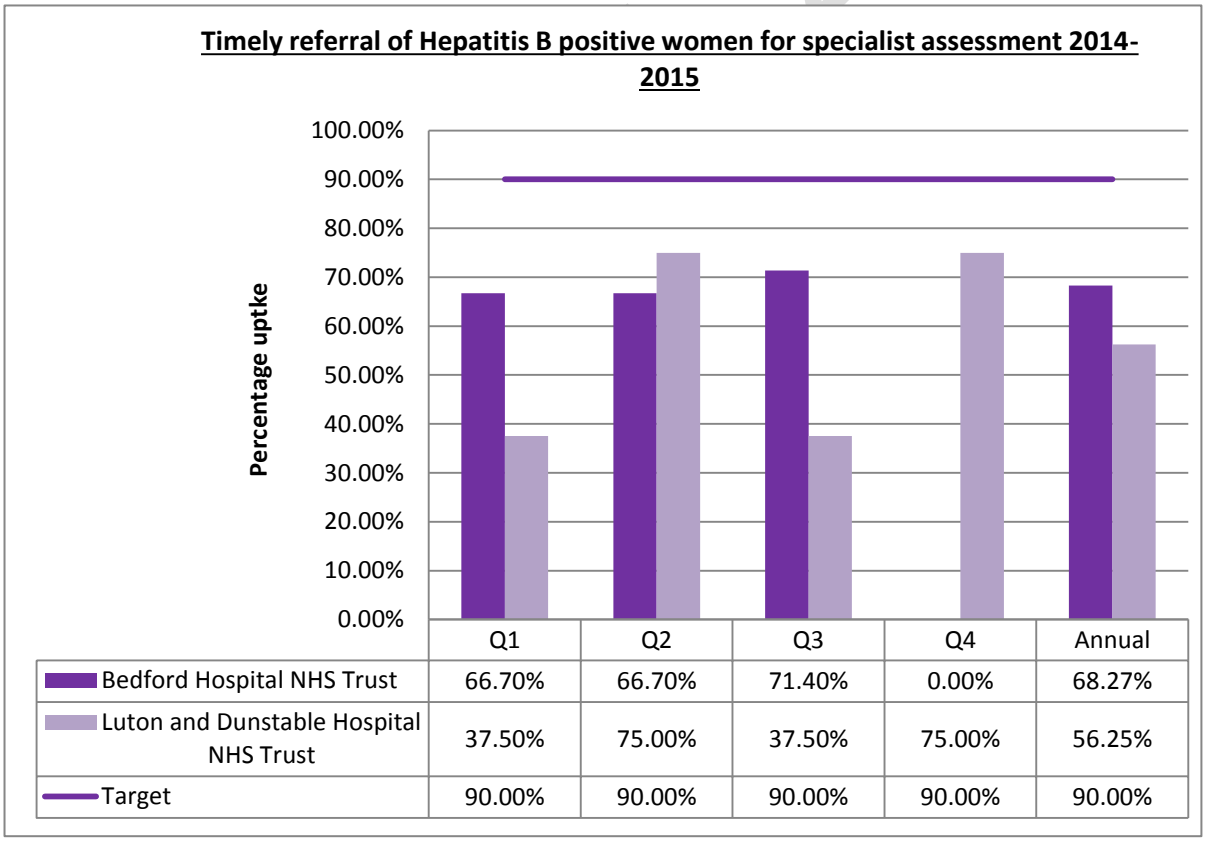
Both Bedford Hospital and Luton & Dunstable Hospital Trust are performing above the

target of 90% screening coverage (Fig1). It should be noted that not all cases of HIV identified through antenatal screening are newly diagnosed, and in many cases HIV positive status is known prior to antenatal screening. In 2013, the percentage of pregnant women screened positive for HIV nationally in total was 0.25%. The percentage of women newly diagnosed in East of England is 0.05% compared with 0.03% nationally.

Screening for Hepatitis B

All pregnant women should be offered screening for Hepatitis B infection, as part of the antenatal screening programme for infectious disease and a national target is in place to ensure that pregnant women are offered antenatal screening for Hepatitis B infection. The national target is above 90% and the national 'acceptable' standard of above 70%. Figure 2 shows that Bedford Hospital Trust screened 68.27 % of its eligible women within the required time frame which is below the accepted target. It is important to note that there are small numbers of women for referral that can significantly affect the achievement of this KPI.

Figure 2: Antenatal infectious disease screening (ID2) – 'Timely referral of hepatitis B positive women for specialist assessment' 2014/15



	Q1	Q2	Q3	Q4	Annual
Bedford Hospital NHS Trust	66.70%	66.70%	71.40%	0.00%	68.27%
Luton and Dunstable Hospital NHS Trust	37.50%	75.00%	37.50%	75.00%	56.25%
Target	90.00%	90.00%	90.00%	90.00%	90.00%

Source: Bedfordshire DPH Screening and Immunisation Programme Report, September 2015 *(Data for IDPS is currently available by Acute Trust only- data relates to screening uptake and outcomes for all pregnant women accessing maternity services at Bedford Hospital and the Luton & Dunstable Hospital, not Bedfordshire women in isolation).*

As the data demonstrates, the provision of antenatal screening to women in Bedfordshire is good, with high levels of uptake for screening for HIV but for Hepatitis B – 'timely referral for Hep B in women', screening uptake is below target and the 70% acceptable national standard.

Screening to identify Foetal Anomaly, inherited metabolic diseases, cystic fibrosis, congenital hypothyroidism, sickle cell disease, congenital physical and hearing anomalies:

Table 1: Other Antenatal and Newborn screening indicators

Screening Indicators	Bedford Hospital Trust	Luton & Dunstable	Q4 England National Average	National Standard/Target
FA1: % Down's Syndrome Screening – Completion Of Laboratory Request Forms	98.9	98.6	67.9	≥97%
ST1: % Antenatal Sickle Cell And Thalassaemia Screening – Coverage	99.3	99.7	99	≥95%
NB1: % Newborn Blood Spot Screening – Coverage	96.6	98.6	95.9	≥95%
NH1: % Newborn Hearing Screening – Coverage	99.5	99.5	98.3	≥99.5
NP1: % Newborn And Infant Physical Examination – Coverage (Newborn)	no data	no data	93.2	≥95%

- **Down syndrome screening (FA1):** Best performer in the region; 174 out of 176 were screened remaining 2 forms incorrect/incomplete. Forms are regularly checked by members of staff prior to sending to Birmingham Lab.
- **Sickle Cell Thalassaemia (ST1):** Have a robust system in place; 798 out of 804 were screened and remaining 6 were exceptionally reported.
- **Newborn Bloodspot Screening coverage within 17 days (NB1**): Uptake is

96.6% with 1261 out of 1306 screened. 45 results were not on System at Day 17 - Exception Report provided

- **Newborn Hearing test (NH1):** 1299 out of 1306 were screened with 99.5% uptake. Exceptional reporting suggests no gaps in the system.
- **New born Physical Examination (NP):** NIPE SMART system has gone live at the end of June however it currently is not being accessed on a regular basis. Plans are being put in place to ensure this is addressed with the aim of Q2 2015/16 data being submitted.

National & Local Strategies (Current best practice)

Antenatal Screening for Infectious diseases

Best practice guidance and evidence used include:

I. *UK National Screening Committee (UKNSCa) (2010) 'Infectious Diseases in Pregnancy Screening Programme, Programme Standards' September 2010;*

II. *UK National Screening Committee (UKNSCb) 'Infectious Diseases in Screening Programme Handbook for Laboratories' September 2010*

III. *Department of Health (DoH) 'Hepatitis B antenatal screening and new-born immunisation programme - Best practice guidance' makes clear recommendations to improve the uptake rate of existing Hepatitis B immunisation programmes for new-borns who are at risk of Hepatitis B infection (DH, 2011).*

HIV

Pregnant women are offered antenatal screening for HIV in order to identify infection, to both allow the timely offer of interventions to reduce the risk of mother-to-child transmission and to safeguard the women's own health. A combination of antiretroviral therapy, appropriate management of labour, and the avoidance of breastfeeding can reduce the risk of mother-to-child transmission from 15-25% to 1% or less (UKNSC, 2010a).

Hepatitis B

Hepatitis B infection is caused by the Hepatitis B virus (HBV), which is transmitted through infected blood and other bodily fluids. The risk of perinatal transmission is dependent on the status of the maternal infection, with around 70-90% of mothers testing positive for HBV e-antigen passing the infection on to the infant. The rate of transmission is lower, at around 10%, in women with antibodies to HBV e-antigen.

The objectives of the screening programme are:

i. To ensure that all Hepatitis B positive mothers identified are referred for specialist care within 6 weeks of screening results and

ii. To ensure that all infants born to Hepatitis B positive mothers receive vaccination within 24 hours of delivery and at 1, 2 and 12 months. In babies born to mothers with a higher risk of transmission, the additional Hepatitis B Specific Immune Globulin (HBIG) can reduce the risk further. With this strategy, transmission can be prevented in over 90% of infants exposed to maternal infection (UKNSC, 2010a).

The antenatal screening programme for infectious diseases should be delivered in line with *'The Infectious Diseases in Pregnancy Screening Programme Standards'* (UKNSC, 2010a). Specific best practice titled *'Hepatitis B antenatal screening and new-born immunisation programme'* (DH, 2011) is available in relation to the delivery of neonatal Hepatitis B immunisation. Both Hepatitis B and postnatal MMR vaccination should be delivered in line with the Department of Health 'Green Book' recommendations for immunisation (DH, 2009). Screening for each of the four conditions should be undertaken using the nationally agreed screening protocols. Analytical processes which govern the diagnostic sensitivity and specificity of tests are outlined in the IDPS Handbook for Laboratories (UKNSC, 2010b).

What are the unmet needs/ service gaps?

There are a number of gaps identified in relation to the screening pathway for infectious disease in pregnancy and newborn screening, as well as the subsequent management of positive screens.

i. The ability to disaggregate data in order to analyse screening uptake for women living in Bedford Borough. This subsequently prevents the development and implementation of targeted strategies to promote screening uptake within specified populations. The ability to analyse screening outcome data beyond the level of acute Hospital Trust. This inhibits the compilation of trend data relating to HIV, Syphilis, Hepatitis B and Rubella.

ii. The absence of a locally agreed, multiagency protocol to govern the postnatal management of women identified as Rubella susceptible

iii. Sickle Cell Thalassaemia screen: Currently early access is measured at 12 weeks and 6 days against expected 10 weeks' time.

iv. Newborn Blood spot test: Delay in sample taking, some of the samples are taken at day 17. Also there are issues with avoidable repeat test that has risen nationally due to new National Lab Quality Criteria implementation; and issue with NB coverage for Movers- In where there are delays in maintaining time

frame of 21 days from GP notifications to results

v. Newborn physical Examination: No designated clinical lead at the provider hospital. and communication gap within the service; no clarity on responsibilities such as who owns the KPI and who is responsible for data entering; exceptional report required, and not clear who will do that

Recommendations for consideration:

i. Develop and implement a local protocol for the management of infants born to Hepatitis B positive mothers.
ii. Data quality improvements should be sought, in order to improve local knowledge of screening uptake and trends in relation to screening outcomes. Access to this level of data will need to be negotiated with Acute Trusts.
iii. Improving early access to Antenatal and newborn screening so that results are available by 10 weeks

Childhood Immunisation

Immunisation protects individuals and the community from serious infectious diseases. As well as being protected themselves, 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, meaning that individuals who cannot be vaccinated will still benefit from the routine vaccination programme. This concept is called population (or 'herd') immunity.

When vaccine coverage is high enough to induce high levels of population immunity, infections may even be eliminated from the country, e.g. diphtheria. If high vaccination coverage were not maintained, it would be possible for the disease to return.

Hepatitis B

Mothers are screened during the antenatal period for Hepatitis B infection, as part of the national antenatal screening for infectious diseases programme. Babies born to Hepatitis B positive mothers should receive a complete course of Hepatitis B vaccination in line with the recommendations made by the Department of Health (DH, 2006).

Hepatitis B vaccine (HBV) usually is given as a series of three injections:

1. Shortly after birth

2. at 1-2 months of age

3. at 6-18 months of age

Vaccine creates long-term immunity. Infants who receive the HBV series should be protected from hepatitis B infection not only throughout their childhood but also into their adult years. Eliminating the risk of infection also decreases risk for cirrhosis of the liver, chronic liver disease, and liver cancer. Young adults and adolescents also should receive the vaccine if they did not as infants

Tuberculosis

The UK BCG immunisation programme which protects against infection with Tuberculosis is targeted, seeking to immunise those at increased risk of developing severe disease and/or of exposure to TB infection. The BCG vaccination should be offered to all babies and children who are deemed to be at high risk (babies from countries whose TB incidence is greater than 40/100,000 or babies who have parents or grandparents who were born in a high incidence country (DH, 2006).

Routine immunisation schedule for 0-19 year old population

i. *At age 2 months, vaccinations offered are:*

a. Diphtheria, tetanus, pertussis, polio and Haemophilus influenza type B (DTaP/IPV/Hib); and
b. Pneumococcal conjugate vaccine (PCV)
c. Rotavirus
d. Meningitis B

ii. *At age 3 months, vaccinations offered are:*

a. Diphtheria, tetanus, pertussis, polio, Haemophilus influenza type B (DTaP/IPV/Hib); and
b. Meningitis C (Men C)
NB: In June 2013, the vaccination schedule for administering the MenC conjugate vaccine changed and the second priming dose previously given at four months was replaced by a booster dose given in adolescence).
c. Rotavirus

iii. *At age 4 months, vaccinations offered are*:

a. Diphtheria, tetanus, pertussis, polio and Haemophilus influenza type B (DTaP/IPV/Hib)
b. Pneumococcal conjugate vaccine (PCV)
c. Meningitis B

iv. *Between 12 and 13 months, vaccinations offered are:*

a. Measles, mumps and rubella (MMR)
b. Pneumococcal conjugate vaccine (PCV)
c. Haemophilus influenza type B (Hib), Meningitis C (MenC)

d. Meningitis B

v. Children aged two, three and four years old and school years 1 and 2 are offered the Influenza vaccination (September – January). (NB: the following year will include 7 year olds adding an age group each year and so on and so forth up until the age of 16)

vi. *At age 3 years 4 months old to 5 years, vaccinations offered are:*
- Diphtheria, tetanus, pertussis and polio (DTaP/IPV)
- Measles, mumps and rubella (MMR)

vii. *Girls aged 12 to 13 years* are offered Human Papillomavirus (HPV) strains 16 and 18

viii. *Young people aged around 14 are offered:*

a. Tetanus, diphtheria and polio (Td/IPV)
b. Meningitis ACWY

ix. *Young people aged around 17/18 are offered:*
a. Meningitis ACWY

Meningitis B and Meningitis ACWY

A number of changes have been made to the national immunisation programme in 2015-16 in order to protect against meningococcal disease following an increase in cases. The Meningitis B vaccine has been introduced to the UK routine immunisation schedule and offered to Babies at 2 months, 4 months and 12-13 months as well as a one off catch up programme.

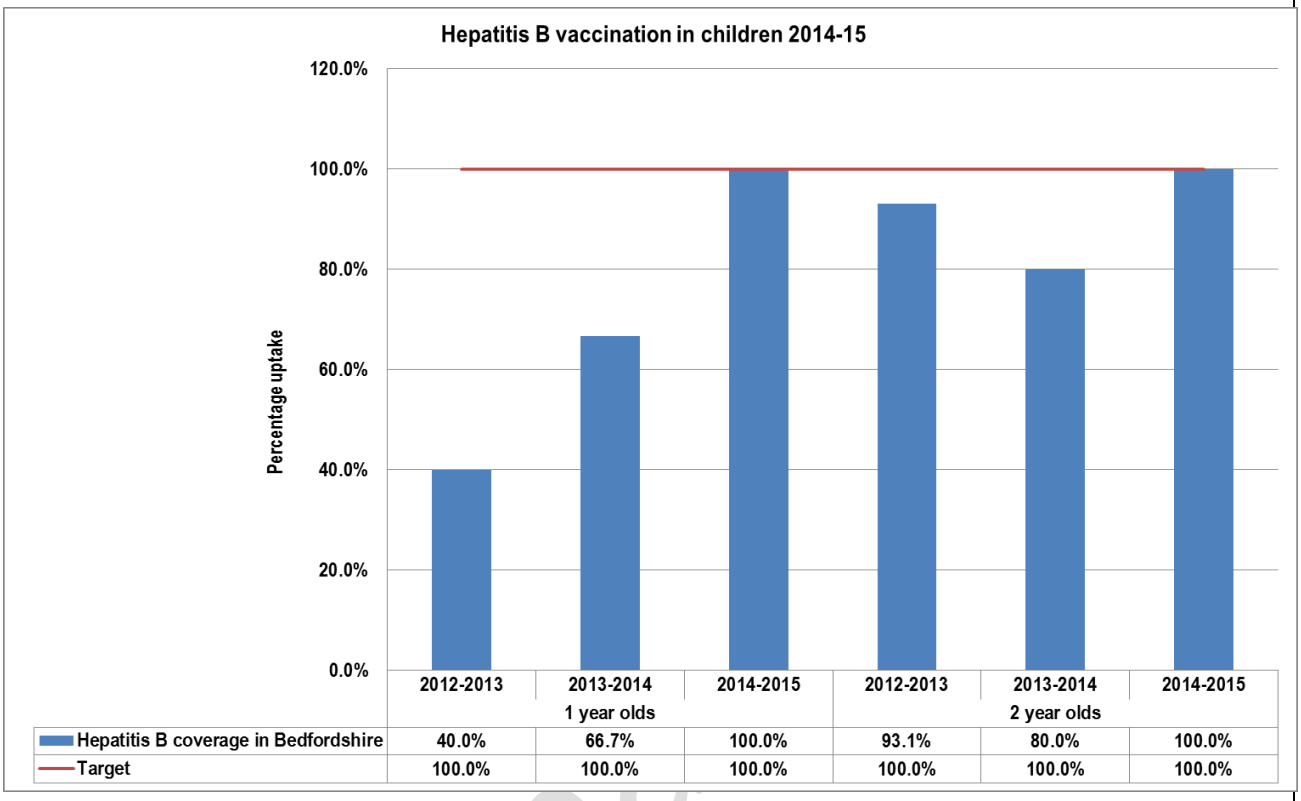
The Meningitis ACWY is being offered to young teenagers, sixth formers and university fresher students. It is given by a single vaccination and protects against 4 causes of meningitis and septicaemia (Meningococcal A, C, W and Y). The priority is to vaccinate all teenagers in school years 9 to 13 before they complete school year 13. This is being done by replacing the routine teenage Men C booster given in school years 9 or 10 with the Men ACWY vaccine, and by a series of catch-up campaigns.

The numbers of cases of meningitis and septicaemia due to Men W have been increasing in England, from 22 cases in 2009 to 117 in 2014 and the increase seems to be accelerating in 2015. With early diagnosis and treatment, most people make a full recovery however it is fatal in about 10% of cases and can lead to long-term health problems, such as amputation, deafness, epilepsy and learning difficulties.

What do we know? Facts, Figures, Trends

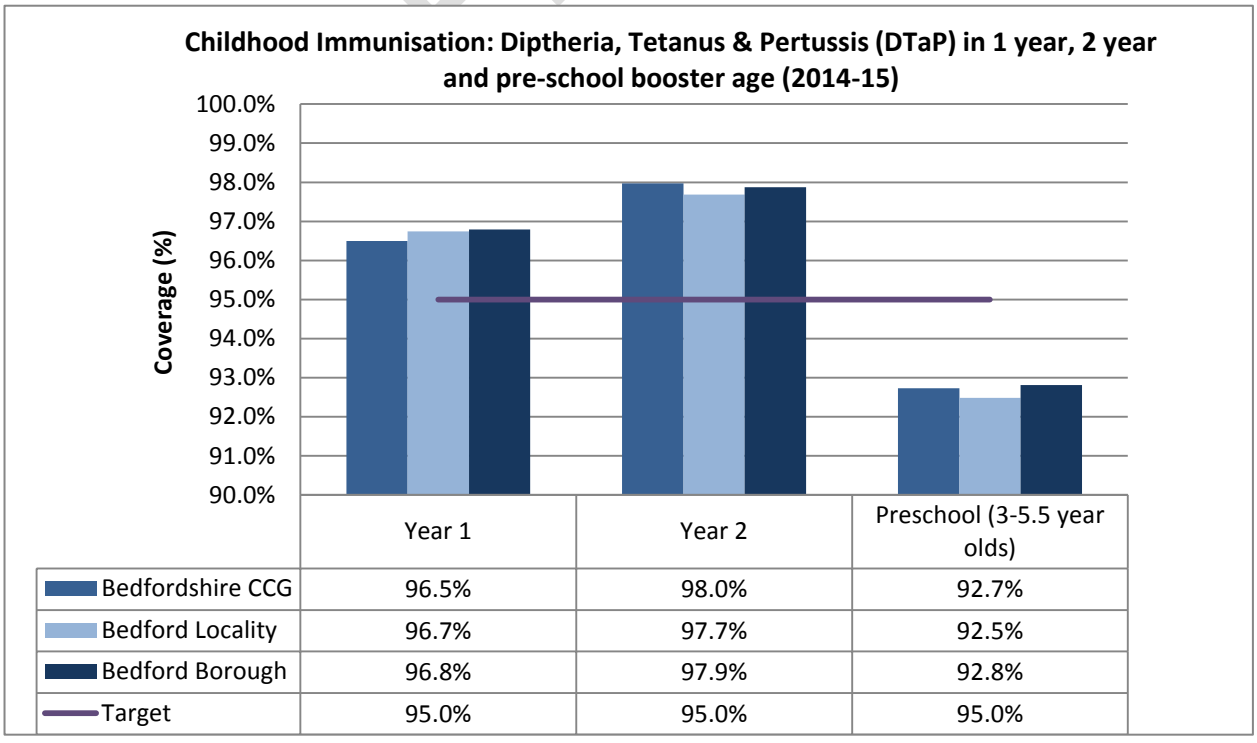
Childhood Immunisations uptake in Bedford Borough

Figure 3: Hepatitis B vaccination coverage in 1 and 2 year old children



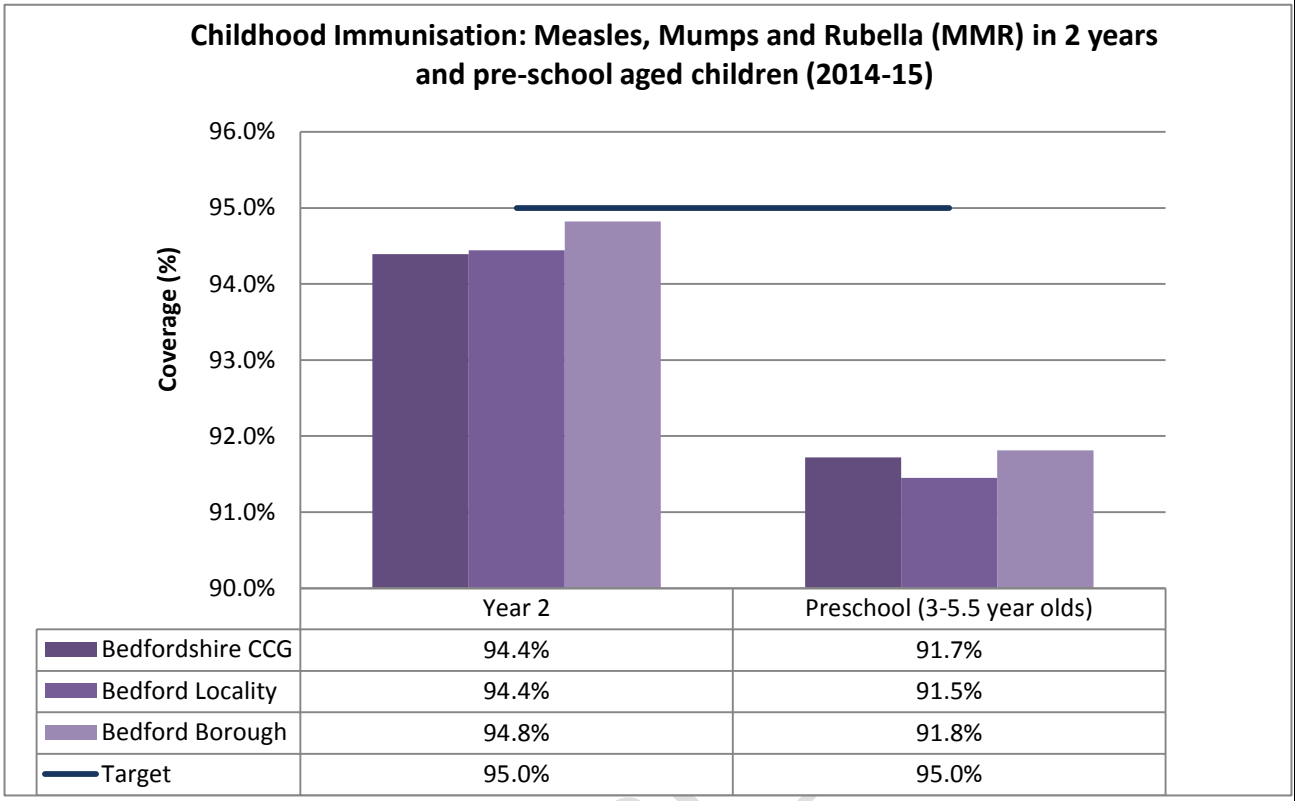
	2012-2013	2013-2014	2014-2015	2012-2013	2013-2014	2014-2015
	1 year olds			2 year olds		
Hepatitis B coverage in Bedfordshire	40.0%	66.7%	100.0%	93.1%	80.0%	100.0%
Target	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 4: Immunisation uptake of DTaP vaccine in 1 year olds, 2 year olds and children aged 3.5 - 5 years old (2014-15)



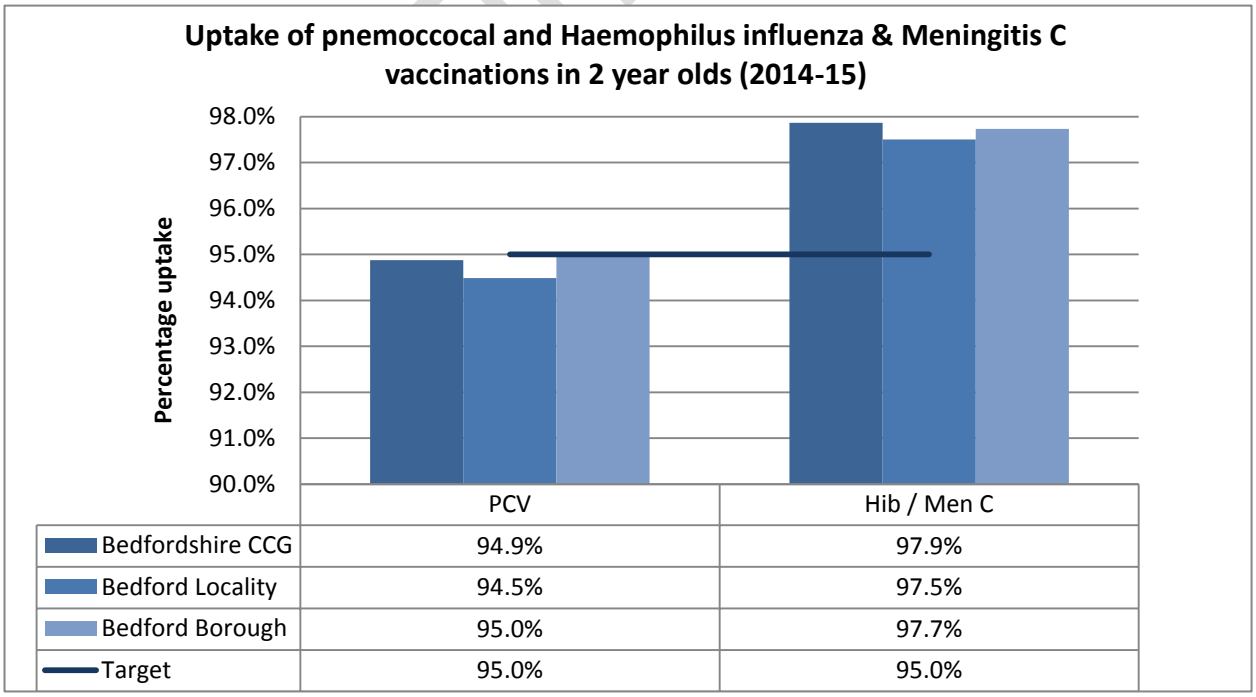
	Year 1	Year 2	Preschool (3-5.5 year olds)
Bedfordshire CCG	96.5%	98.0%	92.7%
Bedford Locality	96.7%	97.7%	92.5%
Bedford Borough	96.8%	97.9%	92.8%
Target	95.0%	95.0%	95.0%

Figure 5: Immunisation uptake of Measles, Mumps and Rubella (MMR) vaccine in 2 year olds and children aged 3.5 - 5 years old (2014-2015)



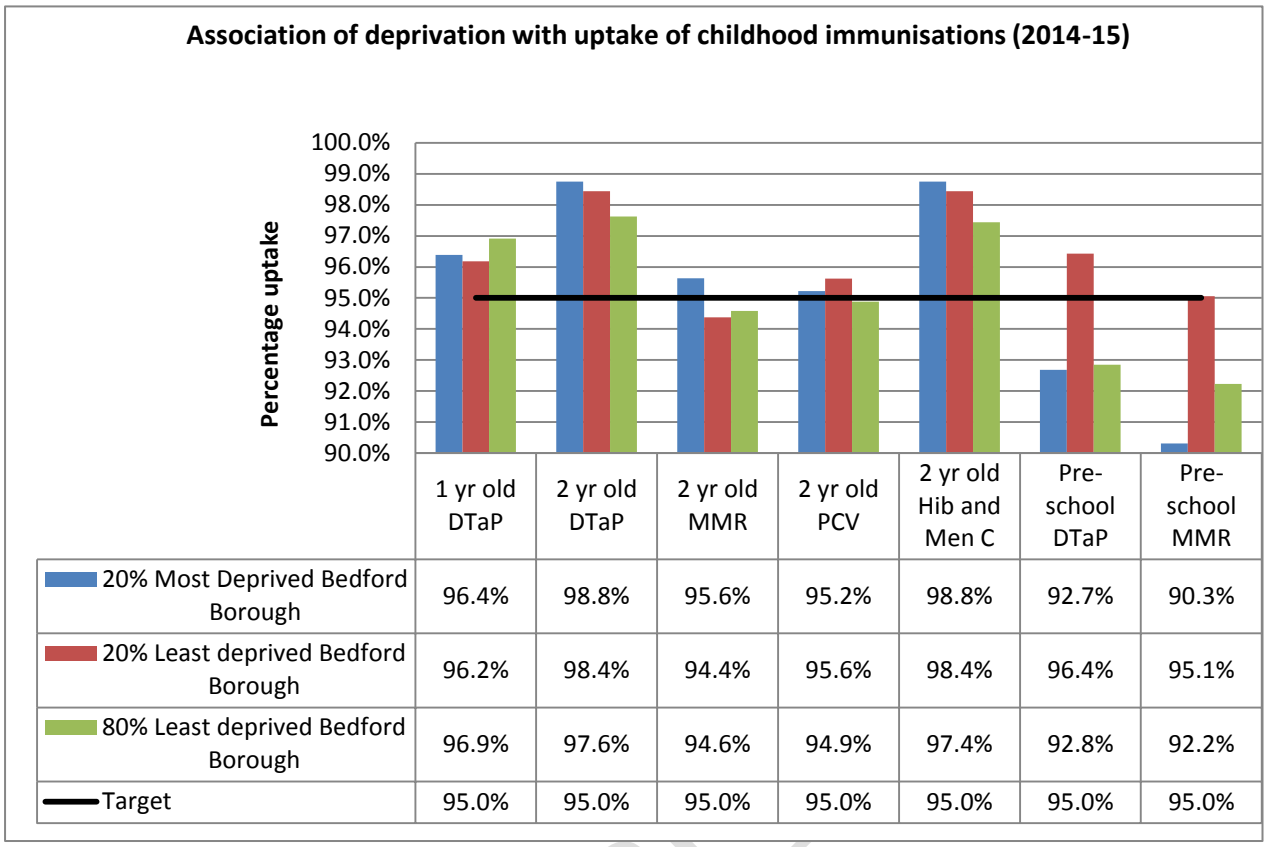
	Year 2	Preschool (3-5.5 year olds)
Bedfordshire CCG	94.4%	91.7%
Bedford Locality	94.4%	91.5%
Bedford Borough	94.8%	91.8%
Target	95.0%	95.0%

Figure 6: Uptake of pneumococcal and Haemophilus Influenza & Meningitis C Vaccination in children age 2



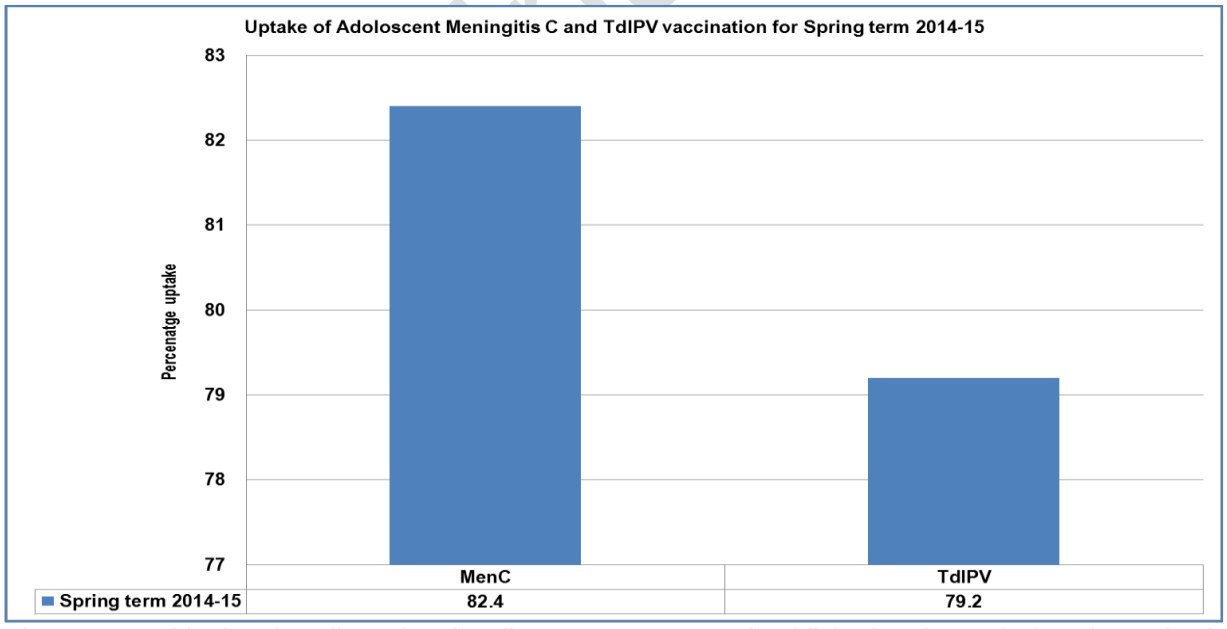
	PCV	Hib / Men C
Bedfordshire CCG	94.9%	97.9%
Bedford Locality	94.5%	97.5%
Bedford Borough	95.0%	97.7%
Target	95.0%	95.0%

igure 7: Uptake of childhood immunisation and its association with deprivation



	1 yr old DTaP	2 yr old DTaP	2 yr old MMR	2 yr old PCV	2 yr old Hib and Men C	Pre-school DTaP	Pre-school MMR
20% Most Deprived Bedford Borough	96.4%	98.8%	95.6%	95.2%	98.8%	92.7%	90.3%
20% Least deprived Bedford Borough	96.2%	98.4%	94.4%	95.6%	98.4%	96.4%	95.1%
80% Least deprived Bedford Borough	96.9%	97.6%	94.6%	94.9%	97.4%	92.8%	92.2%
Target	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%

Figure 8a showing uptake of Meningitis C and Td IPV vaccination



Please note This data is collected nationally once per year and published at the end of each academic year. The NHS England Midlands and East Team (Central Midlands) are collecting this data by provider return twice per annum. To date this data is incomplete and therefore figures for this academic year are not a true reflection of vaccine uptake; however it gives an idea of how the programmes are progressing.

Figure 8b showing uptake of HPV vaccination

	Total No. of girls in Cohort 12	Dose one		Dose one and two	
		Number	%	Number	%
Hertfordshire And The South Midlands	15743	14676	93.2	14167	90.0
Bedford Local Authority	996	943	94.7	910	91.4

- Uptake of childhood immunisations within Bedford Borough mainly reaches the target of 95%, except the preschool vaccinations that includes DTaP and MMR which is given to children at the age of approximately 3 years and 4 months (though measured at 5 years) (fig 1) Q312015/16 figures for Bedfordshire Clinical Commissioning Group (CCG) suggest that MMR (dose 2) vaccination and DTaP vaccination uptake at age 5 have improved by 0.8% in comparison to the last quarter of 2015/15, with an uptake of 92.8% (DTaP) and 91.8% (MMR 2). (fig1)
- Bedfordshire Clinical Commissioning Group is performing significantly better (higher) than both the England and East of England average for MMR 2nd dose vaccination at age 5 at the end of the 2014/15 year. Nationally, uptake of MMR dose 2 is low, with an average of 88% nationally for the 2014/15 year. Therefore, although uptake of MMR dose 2 falls below the 95% target, performance is above the national and regional average.
- Bedford local Authority has vaccinated 94.7 % of its eligible young females with HPV vaccination; and 91.4% of them have completed two doses in the school academoic year of 2014-15., which is better than the national average and has also met the national target of 90%.

National & Local Strategies (Current best practice)

Childhood Immunisation:

Best practice guidelines and evidence used are:

i. *Department of Health (2006) Immunisation against infectious disease London: TSO*
ii. *Department of Health (2009a) Healthy Child Programme: Pregnancy and the first five years of life London: DH*
iii. *Department of Health (2009b) Healthy Child Programme: From 5-19 years old London*
iv. *Department of Health (2011) Hepatitis B antenatal screening and new-born immunisation programme: Best practice guidance London : DH*
v. *The National Institute for Health and Clinical Excellence (NICE) (2009)Reducing differences in the uptake of immunisations (including targeted vaccines) among*

children and young people aged under 19 years London : NICE

All childhood immunisations should be carried out in line with the national schedule for immunisations, as specified by the Department of Health (DH, 2006)

Best practice guidance for reducing inequalities in the uptake of immunisations makes the following recommendations for implementation:

i. Focus on reducing of differences in immunisation uptake among children. Ensure there is an identified healthcare professional in each GP practice who is responsible, and provide leadership for the local childhood immunisation programme
ii. Improve access to immunisation services for those with transport, language or communication difficulties. This could include extending clinic times, weekend/ evening clinics, longer appointment times, walk-in vaccination clinics, mobile or outreach services. Ensure children and young people are seen promptly, make sure clinics are child and family friendly and review the role of hospital staff in encouraging immunisation uptake.
iii. Use a variety of approaches to promote uptake of immunisations such as providing literature in a variety of formats on the benefits of immunisation and raising awareness in different settings such as pharmacies, malls, libraries, nurseries, schools and higher education institutions.
iv. Develop processes to ensure children who miss immunisations are identified and followed up. This is particularly important for children who require targeted immunisations such as Hepatitis B and BCG vaccines (NICE, 2009).
v. Monitor vaccination status as part of a wider assessment of children and young people's health, through the implementation of the Healthy Child Programme. Other professionals for example those in education have an important role to play in promoting immunisations (DH, 2009a & 2009b). The Healthy Child Programme (HCP) reinforces the importance of childhood immunisation and recommends:

    - That immunisations are offered to all children and their parents and calls for local planning to target excluded or at-risk families such as refugees, the homeless, travelling families, very young mothers, those not registered with a GP and those who are new to an area.
    - Every child's immunisation status should be accessed each time a member of the Healthy Child Programme comes into contact with a family. The role of the health visitor and school nurse is crucial in identifying children with incomplete immunisations and encouraging families and children to attend for immunisation.

vi. Promote the importance of childhood immunisations by providing evidence-based information and advice on immunisation.

Bedford Borough Council is part of the Midland and East Area Team of NHS England

who is now responsible for commissioning Immunisation services and performance monitoring of the activities. With the support of LA Public Health, PHE will also provide expert quality assurance of the Immunisation through the specialist national Immunisation teams and staff. Local Providers in conjunction with NHSE area team are responsible for delivering services as per recommended best practice guidelines. Bedfordshire DPH is responsible for overseeing and scrutinising local services and alerts commissioners and providers with any issues identified.

What are the unmet needs/ service gaps?

Service provision:

i. Improved call and recall systems are required, to highlight areas of improvement within primary care, focusing specifically on practices with the poorest uptake.
ii. Improved failsafe processes need to be developed collaboratively between the primary care provider and the Child Health Records Departments, to ensure the timely and effective follow up of children who fail to attend for immunisations.
iii. A robust system for scheduling Hepatitis B immunisations for babies born to Hepatitis B positive mothers is required, to ensure the timely delivery of the correct and complete vaccine dose schedule in line with the Department of Health recommendations (DH, 2006 & DH, 2011).

Access to service:

i. All Primary Care practices should be offering flexible and accessible immunisation services specially provision for increasing preschool boosters.

What needs to be done? Recommendations for consideration:

Responsibility of delivering childhood immunisation now lies with the NHSE area team of South Midland and Hertfordshire. The public health team in the local authority will be supporting agencies responsible for delivery of the childhood immunisation programme in addressing the gaps and including recommendations in the local plans. The following recommendations have been identified through evaluation of the previous years' immunisation performance:

i. A review of call and recall systems and failsafe processes around childhood immunisations should be undertaken, focusing on both Primary Care and Child Health Records Departments.

ii. Targeted work with specific practices can be undertaken , to reduce the number of infants and children who fail to attend for scheduled immunisations

iii. Focus should be on improving access for those groups of children who are at risk of not completing their immunisations to address the inequality such as:

a. Children who have missed a previous vaccination (either through parental

choice or otherwise)

b. Looked after children
c. Children with physical or learning disabilities
d. Children of teenage or lone parents
e. Children not registered with GP practices
f. Children who are hospitalised or with a chronic illness
g. Children from minority ethnic groups
h. Children from non-English speaking families

IV Vulnerable children such as those whose families are travellers, asylum seekers or are homeless.

v Primary Care practices should be supported to implement targeted measures to improve immunisation uptake rates specially in preschool boosters, through the provision of flexible and accessible services, appropriate materials etc.

vi. A local Hepatitis B immunisation pathway should be developed and agreed, to ensure that all affected babies are followed up appropriately and receive timely vaccination

vii. BCG immunisation provision should be reviewed and included in TB service review and redesign planned to make it NICE complaint and fit for TB current national TB strategy.

Adults

Seasonal Influenza

Influenza is not a notifiable disease. It can cause a wide range of illness from a very mild or asymptomatic infection to a very serious illness which can result in hospitalisation and death.

Influenza or 'flu' is a respiratory illness associated with infection by the influenza virus. Symptoms frequently include headache, fever, cough, sore throat, aching muscles and joints. Influenza occurs most often in winter and usually peaks between December and March in the northern hemisphere. Illnesses resembling influenza that occur in the summer are usually due to other viruses.

The influenza virus was first identified in 1933. There are two main types that cause infection: influenza A and influenza B. Influenza A usually causes a more severe illness than influenza B. The influenza virus is unstable and new strains and variants are constantly emerging, which is one of the reasons why the flu vaccine should be given each year.

The most common complications of influenza are bronchitis and secondary bacterial

pneumonia. The other complications of Influenza infection are septic shock, acute infection of tonsils (tonsillitis) and infection of middle ear (Otitis media). These illnesses may require treatment in hospital and can be life threatening especially in the elderly, asthmatics and those in poor health.

PHE carries out laboratory tests to identify which strains of flu are in circulation, coordinates information at the UK level and communicates this information to other health professionals and to the public. The Department of Health (DH) annually circulates annual flu letters detailing its plans for the year's influenza immunisation programme to public health and healthcare professionals in the NHS and other health authorities in England.

NHS Trust chief executives, directors of public health and general practitioners are asked to continue to plan their immunisation programmes based on the previously established long-term, three-year trajectory of achieving the following aspirational targets by 2015/16: to reach or exceed 75% vaccine uptake among those aged 65 years and over; and to reach or exceed 75% uptake among those under 65 years in clinical risk groups, including pregnant women.

Eligibility:

Flu vaccinations are currently offered free of charge to the following at-risk groups:

i. People aged 65 years or over (including those becoming age 65 years by 31 march)
ii. Pregnant women (including those women who become pregnant during the flu season)
iii. People with a serious medical conditions such as:
    chronic (long-term) respiratory disease, such as severe obstructive pulmonary disease (COPD) or bronchitis
    chronic heart disease, such as heart failure
    chronic kidney disease at stage 3, 4 or 5;
    chronic liver disease
    chronic neurological disease, such as Parkinson's disease, motor neurone disease or learning disability;
    diabetes;
    splenic dysfunction; or
    A weakened immune system due to disease (such as HIV/AIDS) or treatment (such as cancer treatment).
iv. People living in long-stay residential care homes or other long stay care facilities where rapid spread is likely to follow introduction of infection and cause high morbidity and mortality. This does not include, for instance, prisons, young offender institutions, or university halls of residence.
v. People who are in receipt of a carer's allowance, or those who are the main care of an older or disabled person whose welfare may be at risk if the carer falls ill.
vi. Healthcare workers with direct patient contact and social care workers.

Immunisation given to healthcare staff directly involved in patient care and social care workers who are employed to provide personal care, acts as an adjunct to good infection prevention and control procedures. In particular, the flu vaccine reduces the risk of infection to the patient/client, infection amongst staff, and staff absenteeism.

What do we know? Facts, Figures, Trends

Seasonal Influenza Immunisation uptake

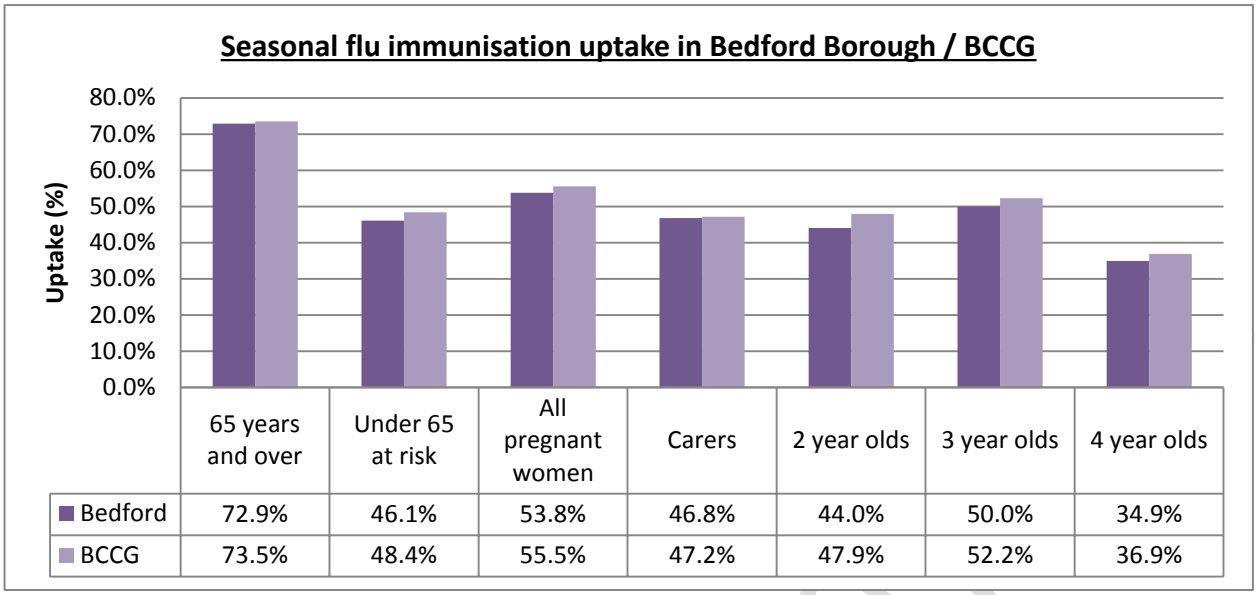
Seasonal flu vaccination uptake in Bedford Borough for patients aged over 65 years, although below the 75% target, was very similar to the England average with 72.9% (72.8% in England) in 2014-15. Seasonal influenza vaccination uptake for patients aged under 65 years in an 'at risk category' however has consistently remained below the target for last three years (46.1% in 2014/15, comparing to 50.3% nationally).

The uptake in Bedford Borough has exceeded its own previous year's performance with an improvement of 0.5% in 65 + group and an improvement of 7.3% in uptake in pregnant women with 72.9% and 53.8% respectively (Fig 9).

There has been a drop in performance for people aged under 65 years old at risk with a reduction of 1.9% in <65 at risk category (72.9% in 2014/15). Within the 'At risk' categories, 47.7% of people with Chronic Heart disease, 69.9% of the people with Diabetes, 52.7% with Chronic Kidney disease, 47.7% people with immunosuppression, 48.5% with Chronic Neurological disease, 44.0% with Chronic Respiratory disease and only 34.8% with Chronic Liver disease and 32.4% of people with Asplenia have been vaccinated. Despite a reduction in overall uptake of vaccination in those in the 'Under 65 at risk' group, there were improvements in most categories. The new eligible category 'Asplenia' brought the overall total proportion of people vaccinated down. Reaching out to people with long term conditions and influencing them to receive vaccination remains a huge challenge.

46.8% of Carers (formal or informal) registered with GP practices in Bedford Borough have been vaccinated, an improvement of 2.0%. This is the second year where all children aged 2 & 3 have been offered flu immunisation and the first year children aged 4 were offered flu vaccination. Bedford has vaccinated 44.0% of 2 year olds, 50.0% of 3 year olds and 34.9% of 4 year old children (Fig 8).

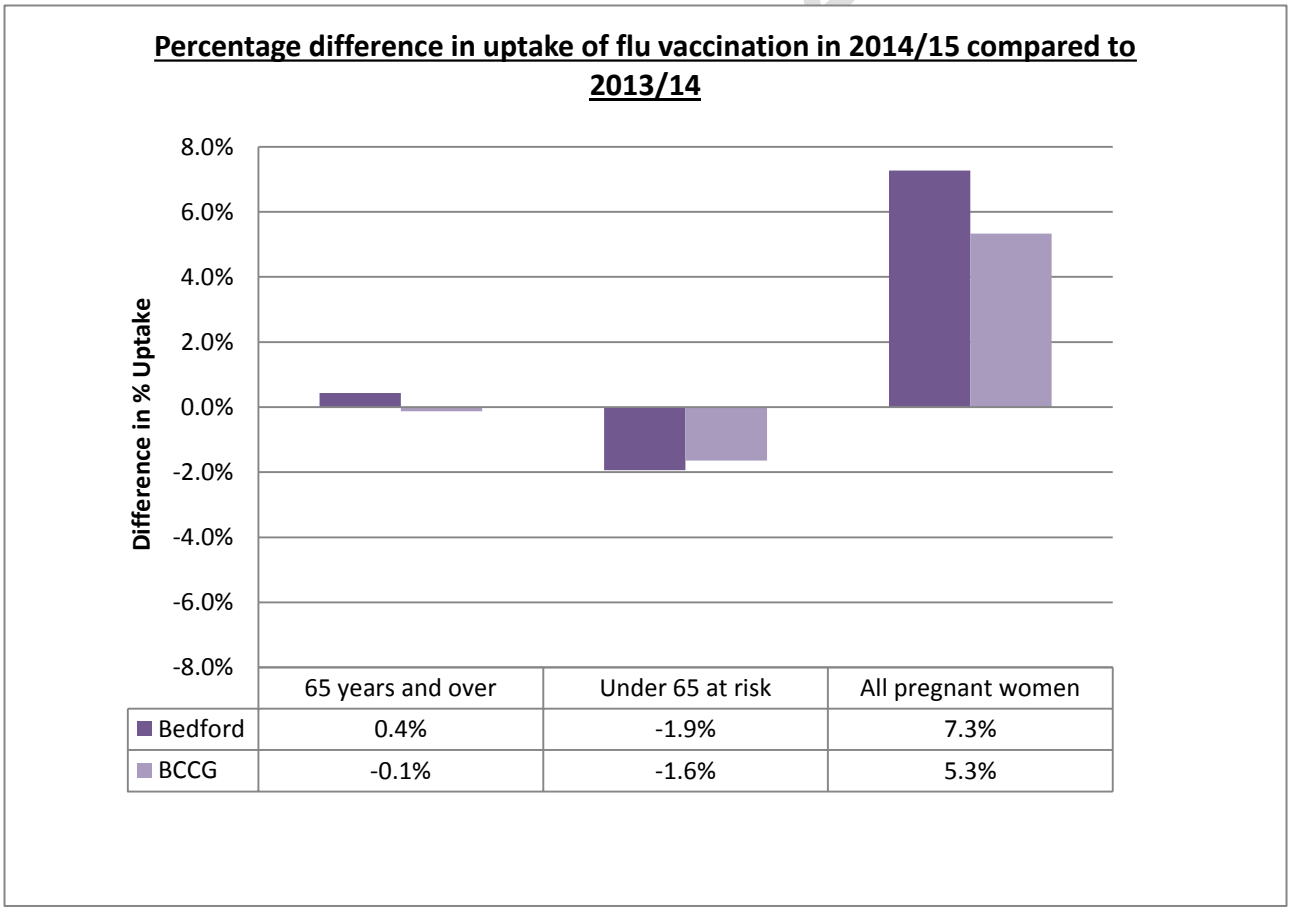
Figure 8: Flu Immunisation uptake of Eligible groups within Bedford Borough



	65 years and over	Under 65 at risk	All pregnant women	Carers	2 year olds	3 year olds	4 year olds
Bedford	72.9%	46.1%	53.8%	46.8%	44.0%	50.0%	34.9%
BCCG	73.5%	48.4%	55.5%	47.2%	47.9%	52.2%	36.9%

Source: Immform Data set 2014-15

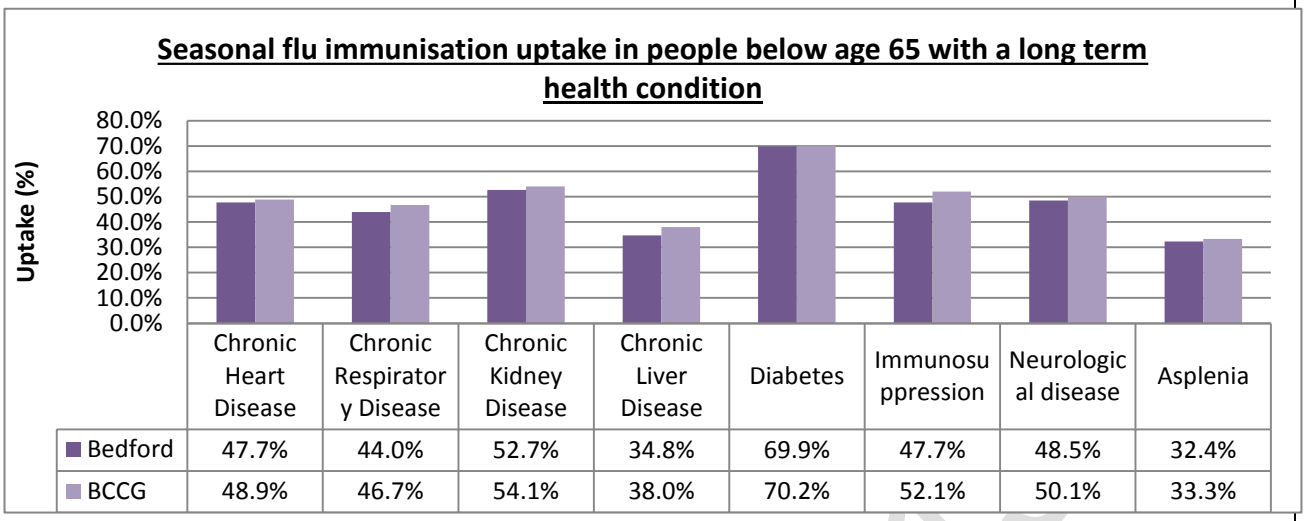
Figure 9: Comparative change in uptake of flu vaccination uptake in three major categories between 2013/14 and 2014/15



	65 years and over	Under 65 at risk	All pregnant women
Bedford	0.4%	-1.9%	7.3%
BCCG	-0.1%	-1.6%	5.3%

Source: Immform Data set 2014-15

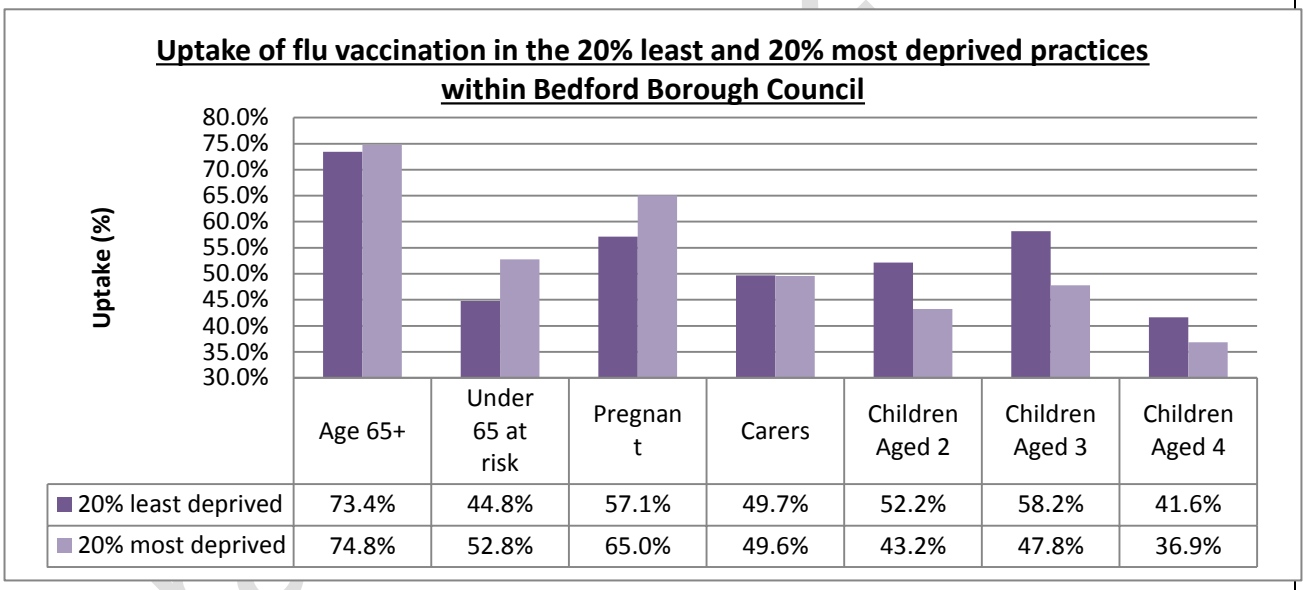
Figure 10: Seasonal flu immunisation uptake in people below age 65 and with a long term condition



	Chronic Heart Disease	Chronic Respiratory Disease	Chronic Kidney Disease	Chronic Liver Disease	Diabetes	Immunosuppression	Neurological disease	Asplenia
Bedford	47.7%	44.0%	52.7%	34.8%	69.9%	47.7%	48.5%	32.4%
BCCG	48.9%	46.7%	54.1%	38.0%	70.2%	52.1%	50.1%	33.3%

Source: Immform Data set 2014-15

Figure 11: showing uptake of vaccination in 20% least and most deprived practices within BBC



	Age 65+	Under 65 at risk	Pregnant	Carers	Children Aged 2	Children Aged 3	Children Aged 4
20% least deprived	73.4%	44.8%	57.1%	49.7%	52.2%	58.2%	41.6%
20% most deprived	74.8%	52.8%	65.0%	49.6%	43.2%	47.8%	36.9%

(Source: Public Health Intelligence Bedford borough and central Bedfordshire)

The association between deprivation and uptake is not evident as uptake in the category 65+, people below 65 'at risk' is better in 20% most deprived practices and uptake in pregnant women is very similar (Fig 11). Conversely, uptake in carers, children age 2 and 3 were better in 20% least deprived (affluent) practices than 20% most deprived. This has followed a similar trend over previous years. Variation in the uptake of seasonal flu vaccination by general practice for all three main risk categories including over 65 years and patients below 65 years at risk and pregnant women have been noticed between GP practices. This indicates inequality in the provision of an effective health protection measure for vulnerable patients at a practice level.

Impact of Seasonal Flu on population and health economy:

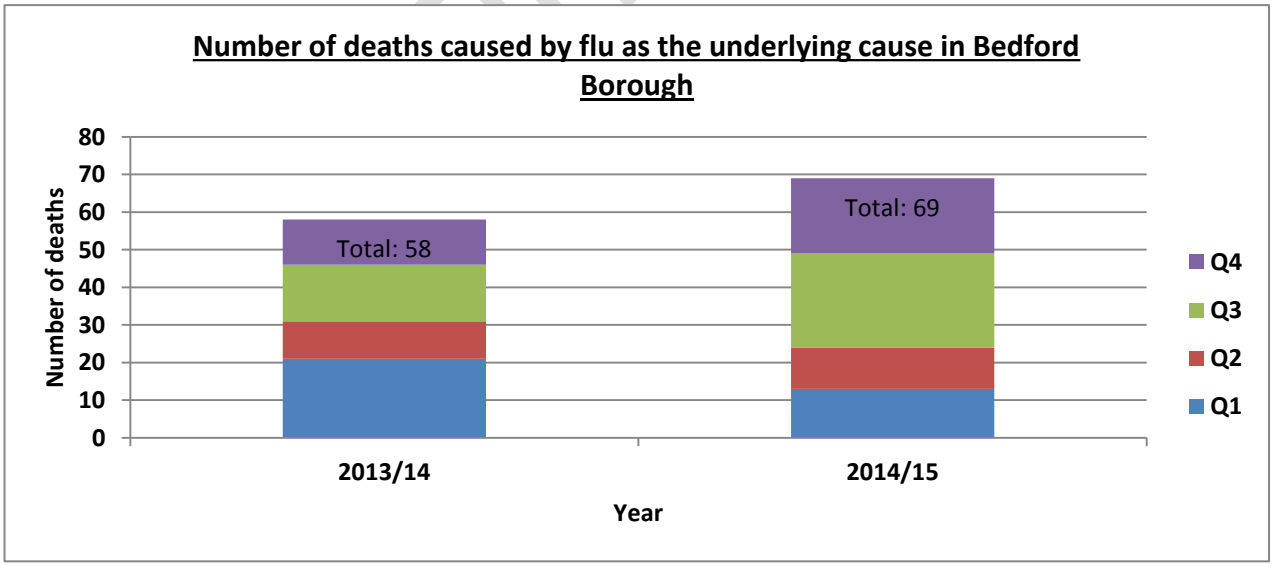
Mortality – Deaths contributed to or caused by seasonal influenza:

The seasonal influenza virus does not necessarily cause high mortality, but for people who are over 65 years of age who are already sick it may speed up their death. For some people with long term conditions, under the age of 65 years, the risk of mortality from seasonal influenza can be far higher than the average population.

Between the years 2013/14 and 2014/15 there were 127 (2 years rolling) residents who died with Influenza as the primary cause of death (Source: Mede-analytics accessed through Public Health Intelligence). There were 69 deaths recorded in the year 2014-15 in Bedford Borough residents, an increase of the previous year by 11 (fig 12).

In each year and season over 90% of pneumonia deaths occur in people aged 65 years or more. Bedford Borough has seen an increase in the proportion of the population aged over 65 years with an expected 16% rise, and an expected rise amongst people aged over 85 years by 32% between 2014 and 2021. This trend is expected to continue into the foreseeable future. As a result, an increasing proportion of the population will be vulnerable to severe disease from influenza. Future seasonal vaccination campaigns will need to provide for an increasing number of people eligible for vaccination in order to mitigate the potential burden of disease from future seasonal influenza epidemics

Figure 12 displays the number of deaths in people in Bedford Borough who died with Influenza as the underlying cause



In addition to the ageing population is the increasing burdens of obesity and alcohol on the Bedfordshire population. This can be anticipated to increase the proportion of people aged below 65 at high risk from seasonal influenza due to chronic long term conditions such as chronic heart disease, chronic liver disease, chronic kidney disease and diabetes.

Hospital Admissions:

There have been 742 hospital admissions of people registered in the practices within BBC where Influenza and its associated complications were the primary diagnoses in 2014/15 (crude number). This is slightly lower than the previous year with a reduction in the crude rate/1000. These admissions incurred a direct in patient cost of £2.1million to the local health economy (table 2).

Table 2: Number of admissions due to influenza and Influenza related complications

Year	Number of admissions	Crude admission rate per 1000	Total Cost
2011/2012	482	1.12	£1,459,245
2012/2013	552	1.26	£1,701,232
2013/2014	538	1.21	£1,673,669
2014/2015	742	4.1	£2,130023

(Source: Mede-analytics accessed through Public Health Intelligence: codes searched (J101 - Influenza with other respiratory manifestations, other influenza virus identified, J108 - Influenza with other manifestations, other influenza virus identified, J111 - Influenza with other)

National & Local Strategies (Current best practice)

Best practice guidelines used:

i. *"The flu immunisation programme 2015/16". Letter from the Chief Medical Officer, the director of nursing and the chief pharmaceutical officer for England, 27 March 2015. Available at:* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/418428/Annual_flu_letter_24_03_15__FINALv3_para9.pdf

ii. *Department of Health: seasonal flu plan 2015-2016. Available at:* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/418038/Flu_Plan_Winter_2015_to_2016.pdf

iii. *NICE 2009. Amantadine, oseltamivir and zanamivir for the treatment of influenza. Available at: www.nice.org.uk/TA168*

Each year the chief medical officer (CMO), along with the chief nursing officer and chief pharmaceutical officer, sends a letter detailing the next seasonal flu immunisation programme. The letter from the CMO is a letter for the action of many key health providers and commissioners including:

i. GPs
ii. Chief executives of Primary Care Trusts (Now Clinical commissioning group), NHS Trusts and Foundation Trusts
iii. Directors of Public Health, Immunisation and flu coordinators
iv. Medical Directors of NHS Trusts
v. Directors of Nursing, Directors of Maternity Services, Lead Nurses, Midwives, Practice Nurses, Health visitors

A number of changes to the national immunisation programme are being made during 2015-16 to reflect the planned and phased implementation of a series of recommendations by the Joint Committee on Vaccination and Immunisation (JCVI), improving the overall level of protection against preventable diseases. The existing flu immunisation programme for children will be extended over a number of years to include all children aged two to 16 inclusive.

In 2014/15 flu vaccination was offered for the first time to all four year olds in addition to all two and three year olds who were offered the flu vaccination for the first time in the previous year. In 2015/16, the flu immunisation programme for children will expand so that: all children aged two, three, and four years old (but less than five on 1 September 2014) as well as children in school years 1 and 2 will be offered flu vaccine. In addition to this, seven geographical pilots of primary school aged children started in 2013/14 will continue and a minimum of twelve geographical pilots in secondary school aged children in years 7 and 8 will be introduced in 2014/15. Bedfordshire has not been a part of this national pilot programme.

Recommendations for seasonal influenza immunisation are further detailed in the green book, which is updated regularly online.

What are the unmet needs/ service gaps?

Seasonal Influenza vaccination:

i. Flu vaccine uptake is particularly poor in some GP practices. This variation is independent of practice level deprivation, and indicates inequality in the protection of groups of vulnerable patients against seasonal influenza. This variation in influenza vaccine uptake represents variation in the protection of the health of different GP practice populations. What is not clear is how much of this variation is due to resistance of the different GP practice populations to influenza vaccination and how much is due to variation in service provision.
ii. Specific patient groups aged below 65 years of age such as those with chronic liver disease, chronic respiratory disease and Asplenia appear to have poor uptake. Although uptake of vaccination in pregnant women has improved again this year, it

still remains below the national target of 75%. .

iii. Gap in awareness: Seasonal influenza presents a varied picture due to the occurrence of a variety of other viral infections that can cause flu like symptoms. This can mask the threat that influenza presents to vulnerable people with a much greater risk of complications and undermines people's sense of urgency in accessing seasonal flu vaccination which is a safe and effective method to protect people at high risk from flu, freely available to them from their GPs.

What needs to be done? Recommendations for consideration:

The Local authority does not have direct responsibility of delivering seasonal Influenza immunisation; the responsibility now lies with NHS England area team of Central Midland. The Immunisation programme is delivered through general practitioners in primary care. The Public health team in the local authority will be the supporting agency responsible for the delivery of the seasonal influenza (flu) immunisation programme. Public health supports commissioners in localising national plans and supports providers in addressing the gaps and providing recommendations in the local plans.

Recommendations identified through last year's evaluation:

i. A coordinated Bedfordshire wide campaign to raise awareness of the importance of flu and need for vaccination for individuals at risk from influenza, for Health Care Workers (HCW); and social care workers including those in the private sector who are making number of visits to vulnerable people in their own homes and are the potential carriers. This campaign must start ahead of the seasonal flu vaccination season, and should include targeted messaging for patient groups with low flu vaccine uptake, for example pregnant women. A more coordinated campaign has the advantage of increasing the reach of the message, whilst maintaining consistency.

ii. A focussed campaign to educate NHS staff dealing with pregnant women on the importance of the flu vaccination. This needs to be targeted at key staff groups such as midwives and GP practice staff (both clinical and non-clinical) to ensure that a consistent and accurate message is provided to pregnant women.

iii. NHS organisations, including GP practices, community services and hospitals must continue to improve uptake of the seasonal flu vaccine by frontline health care workers as a measure to protect the health of vulnerable patients.

iv. The commissioning organisations for NHS and social care in Bedford Borough need to identify ways to ensure providers of NHS care and providers of residential care in Bedfordshire actively promote and provide free flu vaccination for frontline social care and care support workers.

v. Local barriers to flu vaccine uptake needs to be identified, particularly in groups with low uptake, specifically group of people below age 65 who have long term conditions. This could involve surveys of patient experience or focus group work.

vi. Bedford Borough occupational health department should ensure the provision of flu vaccination to its local authority staff in regular contact with vulnerable people.

Monitoring and evaluation of use of flu clinics / voucher schemes would help to determine uptake and identify groups with low uptake.

Tuberculosis

Tuberculosis (TB) is a vaccine preventable infectious disease, caused by bacteria belonging to the Mycobacterium tuberculosis complex. TB usually causes disease in the lungs (pulmonary), but can also affect other parts of the body (extra-pulmonary). Cases of TB in the UK were gradually rising with a peak of cases in 2009. However, since 2009 there has been a year on year decline of TB cases.

In 2009, the UK had and overall 3 year average incidence of 15.2 cases per 100,000 of population (2009-2011) – this has since reduced to 13.5 /100,000 in the period of 2012-2014. A total of 7,892 cases of tuberculosis were reported in 2013 – overall numbers of TB cases in the UK have declined 11.6% in the past two years, due to a small decline in numbers and rates in the non-UK born population.

The majority of disease occurred among people born outside the UK (73%) and is typically concentrated in the most deprived populations. The majority of patients were young adults aged 15 to 44 years (60%); 54-64 were 23% and 65 years and over accounted for 14% of cases. (Tuberculosis in the UK: Annual report on tuberculosis surveillance in the UK – 2014 Report, PHE).

What do we know? Facts, Figures, Trends

Incidence of Tuberculosis

The three year average number of TB cases in Bedford local authority in 2011-2013 is 16.9/100,000. The rate of TB incidence /100,000 has increased slightly for Bedford Borough Council (from 15.9 in 2011-13) and the count has increased from 76 in 2011-13 to 82 in 2012-14. Bedford borough has a higher incidence of TB than England on a whole.

Since 2008, Bedford Borough has seen a reduction in the number of cases aged between 25 and 34 years, however, in 2011 there has been an increase in the number of cases in this age group (Fig 13). No more recent data has been available at this level since 2011.

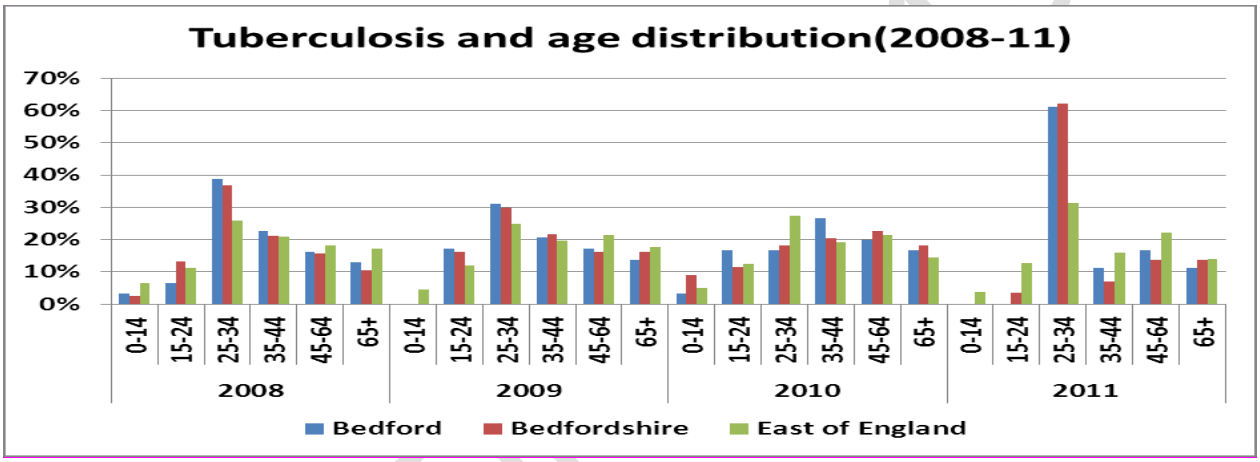
The Tuberculosis treatment completion target is 100% of cases. In BBC, the completion rate has fluctuated and stands at 88.9% in 2012, not significantly different from the England average at 83.6%.

Table 3: TB incidence (3 year average)/ 100,000 in Bedford Borough

Period	Bedford Borough	East of England	England
2008 - 2010	18.9	8.5	15.1
2009 - 2011	16.2	8.7	15.2
2010 - 2012	16.9	8.6	15.1
2011 - 2013	15.9	8.2	14.7
2012 - 2014	16.9	7.5	13.5

Source: PHE Fingertips – Tuberculosis indicators. Available: http://fingertips.phe.org.uk/profile/tb-monitoring/

Figure 13: Age distribution of confirmed Tuberculosis cases



National & Local Strategies (Current best practice)

Best practice based on:

i. *National Institute of Health and Clinical Excellence (NICE) (2011) Tuberculosis: Clinical diagnosis and management of tuberculosis and measures for its prevention and control*
ii. *National Institute of Health and Clinical Excellence (NICE, 2012) Identifying and managing tuberculosis among hard-to-reach groups Public Health Guidance 37*
iii. *Collaborative Tuberculosis Strategy for England (2015-2020)*
iv. *Tuberculosis local action plan*
v. *Department of Health (2009) Supply of TB drugs to patients – changes to regulations and advice on implementation*

England has a higher rate of TB than most other western countries as well as being four times as high as the USA. In response to this concern, PHE released the 'Collaborative tuberculosis strategy for England 2014 to 2019' in January 2015.

The strategy aims to commit to tackling TB through the following areas of focus:

- Improving access to services and ensure early diagnosis;
- Provide universal access to high quality diagnostics;
- Improve treatment and care services;
- Ensure comprehensive contact tracing;
- Improve BCG vaccination uptake;
- Reduce drug resistant TB;
- Tackle TB in underserved populations;
- Systematically implement new entrant latent TB screening;
- Strengthen surveillance and monitoring and
- Ensure an appropriate workforce to deliver TB control.

The strategy recommends screening recent entrants to the UK (last 5 years) for latent TB at priority practices. The process for screening for latent TB, in line with the recommendations for best practice outlined by NICE (2011) involves the use of Interferon Gamma Release Assays (IGRA). An economic evaluation of the use of such screening processes for latent TB has demonstrated cost-effectiveness (Gray & Ormerod, 2007). TB Services commissioned by Bedfordshire Clinical Commissioning Group incorporate the routine use of IGRA testing (T-Spot).

Effective screening and treatment of 1000 cases of latent TB, at a cost of £550,000, could prevent 150 active cases of TB, which would cost an estimated £900,000 to treat. The effective management of each active case of TB, through a local TB service, is essential in preventing the progression of the infection to a drug resistant or multi-drug resistant strain, which average a cost of £50-70,000 per case to treat.

Evidence exists to support the structure of the BCG immunisation programme to prevent against TB infection, and also to support the delivery of local services to prevent, diagnose and manage TB. Following a review of BCG vaccination by the JCVI, a national policy change was implemented in 2005 and is still relevant to refer.

What are the unmet needs/ service gaps?

Current service provision has some gaps in fully complying with NICE. A full service review and gap analysis can be found in the 2012 TB Health Needs Assessment. In brief the key gaps are outlined below:

i. There are insufficient arrangements for the opportunistic identification of children aged 4 weeks to 16 years requiring targeted BCG vaccination. School BCG vaccination programme discontinued since 2005 and the new immunisation schedule is based on risk assessment and involves targeted immunisation of neonates and others at high risk.

ii. Processes for screening new entrants to the geographical area should be improved to meet best practice guidance. This includes improved routine identification upon registration with Primary Care, processes for identifying high risk new entrants at entry to higher education and improved links with statutory and voluntary groups working with new entrants.

iii. There is a need to improve outreach screening and education for high risk groups, particularly the homeless community.

Recommendations for consideration:

Unlike England as a whole, data shows that Bedford Borough hasn't shown a sustained decrease in incidence of TB each year with fluctuations since 2009 (Table 3). There are a number of key actions which may be taken to reduce TB incidence and improve the health outcomes for those with TB in Bedford Borough.

i. Screening for latent and active TB within the new entrant population to meet the recommendations of the national strategy. It is likely that doing so will have a significant impact upon the capacity of the TB Service; however, the cost-effectiveness of screening for TB has been demonstrated. Local processes for identifying new entrants likely to be at high risk of TB are currently inadequate and are not effective in identifying all those who would require screening to meet current best practice guidance.

ii. Local TB Service provision should be commissioned in line with best practice guidance for hard-to-reach groups, which incorporates elements to improve service provision such as:

- Access to emergency accommodation
- Rapid access clinics
- Referral pathways to supportive services
- Improved access to screening

ii. A review of local surge capacity is required, to ensure adequate TB service capacity and support in place in the event of a local TB outbreak.

iii. The local BCG immunisation programme switched from a school based national programme, to a targeted programme in 2005. It is apparent that a cohort of young people will have fallen between the two programmes, and some of these children will be considered at high risk of TB infection. Work should be undertaken locally to ensure that appropriate and sufficient measures are being taken to identify young people at risk of TB in order to offer then screening and /or immunisation.

iv. Local priorities are focused on improving services for the prevention, detection and treatment of latent and active TB, in line with latest best practice guidance (NICE

2011).

Hepatitis B and C

Hepatitis B and Hepatitis C are blood borne viral infections that can lead to chronic liver disease and liver cancer resulting in potentially preventable serious ill health and death.

The virus may be transmitted by contact with infected blood or body fluids such as through household or sexual contact with an infected person. The virus can be transmitted by the following routes:

i. Vertical transmission (mother to baby) from an infectious mother to her unborn child;
ii. Sexual transmission through unprotected vaginal and anal sex;
iii. Sharing or use of contaminated equipment during injecting drug use;
iv. Medical or dental treatment in medium to high prevalence countries;
v. Receipt of infectious blood or infectious blood products from medium to high prevalence countries;
vi. Needle stick or other sharps injuries (in particular those sustained by hospital personnel);
vii. Tattooing and body piercing.

Hepatitis B is a vaccine preventable disease, which means infection can be prevented in high risk groups through the provision of immunisation.

What do we know? Facts, Figures, Trends

Hepatitis B

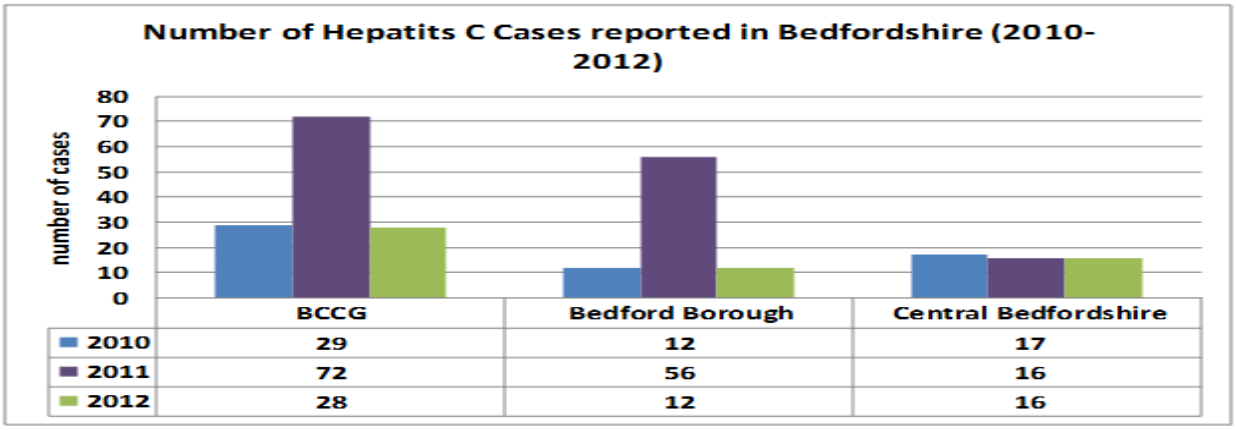
Public Health England (PHE) has had significant issues with geographical assignment of the Hepatitis data. There has been no clear change in the incidence of Hepatitis B in the East of England since 2009 with an incidence of 0.85/100,000 in 2009 and 0.89/100,000 in 2014.

Nationally, there seems to have been an overall trend of a reduction in cases since 2009 with 1.15 cases per 100,000 however rates have fluctuated. The PHE Health Protection report, August 2012 (Vol 6 no 34) gives an incidence of Hepatitis B in various age groups of England. The 25–34 age group have the highest incidence at 2.26 per 100,000 population followed by 35-44 age group with 1.94 per 100,000per population. The above data is not available in local form.

The incidence of Hepatitis B in 2012 (Bedford borough) was 13.6 /100,000. The population vaccination coverage for Hepatitis B at one year old (for eligible children) and at 2 years old, uptake is 100% (2014/15).

Hepatitis C

Figure 14: Number of cases reported in Bedfordshire between 2010-2012



	BCCG	Bedford Borough	Central Bedfordshire
2010	29	12	17
2011	72	56	16
2012	28	12	16

Source: Case numbers for local figures from Iain Roddick PHE Eastern Epidemiology Unit HPA Hepatitis in the UK 2012 report.

Count of lab confirmed Hepatitis C increased, 3 cases reported for Bedford; with a rate of 1.3/100,000.Public Health England (PHE) has had significant issues with geographical assignment of the Hepatitis data. There is no more recent local data available.

National & Local Strategies (Current best practice)

Hepatitis B and C:

The Best practice guidelines and evidence used to deliver Hepatitis services are:

i. *The green book* *https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/179349/green_book_complete.pdf.pdf*
ii. *BASSH UK National guidelines on the management of the viral Hepatitis A,B and C 2008*
iii. *Hepatitis B and C: ways to promote and offer testing to all people at increased risk of infection. NICE public health guidance 43. Dec 2012*
iv. *UK national guidelines on safer sex advice July 2012*
v. *Joint Report on Hepatitis C in the East of England 2006 August 2007; NHS East of England, Health Protection Agency Regional Epidemiology Unit, Eastern Cancer Registry and Information Centre (ECRIC), Eastern Region Public Health Observatory (ERPHO).* *http://www.erpho.org.uk/Download/Public/18413/1/HepC%20in%20the%20EoE%20Joint%20Report%20Aug%202007.pdf*

The above best practice guidance and evidence base recommends to provide

Antenatal screening and new-born immunisation programme and Vaccinate all in high risk groups as identified in the green book. Post exposure vaccination and testing should be available for accidental inoculation, contamination and Sexual partners. Testing for Hepatitis B should be available in primary care, prisons and youth offender institutions, immigration removal centres, drugs services and in genitourinary medicine and sexual health clinics, Mental health and Learning Disability assessment and treatment unites for disturbed/challenging service users; and all prisoners, youth offenders and immigration detainees should be offered access to confidential testing for Hep B and C during their detention.

Best practice also suggests to raise awareness and provide services to test and early diagnose hepatitis B and C especially for those at high risk (such as migrants from high prevalence countries, people who inject or have injected drugs, men who have sex with men, those who change sexual partners frequently, those in receipt of infectious blood or infectious intervention and persons with tattoos and skin piercings). General population should be educated about the importance of early diagnosis and management of Hepatitis B and C and safer sex should always be promoted.

There should be regular updates to Health care workers to follow Standard infection control precautions at all times; provision of needle exchange and harm reduction programs in drug services, accident and emergency services and some pharmacies. Health care professionals should have knowledge and skill to identify and appropriately address the needs of High risk groups. Primary care practitioners should promote the importance of Hepatitis C testing for children who may have been exposed to hepatitis C at birth or during childbirth

Local skin piercing businesses should adhere to health and safety measures and national regulations while offering their services.

To address the gap in data storage there should be a system for collection and collation of robust service level data on testing and treatment.

What are the unmet needs/ service gaps?

Hepatitis B and Hepatitis C

i. Develop the knowledge and skills of healthcare professionals and others providing services for people at increased risk of hepatitis B and C
ii. Foster and adoptive families need to be made aware of the need for Hepatitis vaccine;
iii. Prison: the procedure for screening for BBV's could be improved with point of care testing;
iv. Immigration detainees – Routine testing not supported by UK Boarder agency/Dept. of health (DOH), however will do serology testing if requested or

perceived high risk

v. No needle exchange and harm reduction programs in Bedford Hospital Trust (BHT) and Luton and Dunstable Hospital Trust (LDHT) accident and emergency services;
vi. Primary care – Hepatitis B and C awareness raising, and testing needs to increase
vii. Skin piercing businesses are regulated by Bedford Borough and should be using sterile procedures and equipment, however a number of freelance practitioners remain unregulated therefore there may be a risk of infection.
viii. Lack of robust data for immunization, testing and treatment of Hepatitis B and C disaggregated at the LA level.

Recommendations for consideration:

i. Raise awareness of Hepatitis B vaccination at foster carers training (BCCG and SEPT)
ii. Explore the uptake of Hepatitis Vaccination in people with learning difficulties in residential homes (Local Authority Public Health)
iii. Increase testing for Hepatitis B and C in: Primary care; HMP Bedford; Youth offending Service; Yarlswood Immigration removal centre; Brook and Terrence Higgins Trust Sexual health Clinics and Bedford and Luton and Dunstable Hospital Trust Genito-urinary Medicine Clinics (BCCG-responsible organisation)
iv. Wider use of Point of Care Tests (POCT) for both Hepatitis B and C in HMP Bedford; Yarlswood Immigration removal centre; and Primary care (SEPT, SIRCO and BCCG-responsible organisations)
v. Increase range of needle exchange and harm reduction programs in BHT and LDHT Accident and Emergency departments (BCCG)
vi. Raising awareness of the risks of tattoos and body piercings to the skin piercers and the general population (Local Authority Public Health and environmental health)
vii. Hepatitis B and C data collection of vaccinations, screening and treatment, needs strengthening by using formal contracting / commissioning in: Bedford hospital trust; Luton and Dunstable hospital trust; Brook and Terrence Higgins trust Sexual Health services; Primary care; Learning disabilities; Foster carers; HMP Bedford; Yarlswood Immigration removal centre and CAN partnership (BCCG –responsible organisation)

Health Care Acquired Infection (HCAI)

HCAI are infections that are acquired as a result of healthcare interventions. There are a number of factors that can increase the risk of acquiring an infection, but high standards of infection control practice minimise the risk of occurrence. PHE assists infection control and the control of antimicrobial resistance in the healthcare setting by monitoring these infections with mandatory and voluntary surveillance schemes covering bacteraemia (blood stream infections). Bacteraemia caused by Staphylococcus aureus - both methicillin-resistant Staphylococcus aureus (MRSA)

and methicillin-sensitive Staphylococcus aureus (MSSA), E.Coli and glycopeptide-resistant enterococcus (GRE), Clostridium difficile infection (C. diff/CDI) and surgical site infections (of which some orthopaedic categories are mandatory) via the surgical site infection surveillance scheme (SSISS) are all monitored. Other healthcare associated infections, including antimicrobial (antibiotic) resistant micro-organisms are also monitored via a voluntary microbiology laboratory reporting system.

The HPA (now part of Public Health England, as of 1 April 2013) coordinated England's participation in the European Centre for Disease Controls (ECDC) Fourth National Prevalence Survey on Healthcare Associated Infections & First National Prevalence Survey on Antimicrobial Use and Quality Indicators in England. Hospitals in England participated in data collection between September and November 2011. Key results from the survey have shown that:

- The prevalence of HCAI was 6.4%. A total of 3,360 patients were diagnosed with an active HCAI with 135 patients having more than one.
- When comparing ward specialties, HCAI prevalence was highest in patients in intensive care units (ICUs) at 23.4 per cent followed by surgical wards at eight per cent.
- The most common types of HCAI were respiratory (including pneumonia and infections of the lower respiratory tract) (22.8 per cent), urinary tract infections (UTI) (17.2 per cent), and surgical site infections (15.7 per cent). Since the last PPS in 2006 there has been a eighteen fold reduction overall in MRSA bloodstream infections - from 1.3 per cent to less than 0.1 per cent in patients; and a fivefold reduction in C. difficile infections (from two per cent to 0.4 per cent).
- The prevalence of antimicrobial use was 34.7%.
- Most antibiotic use (53 per cent) in hospitals was in patients receiving treatment for infections which commenced in the community. Thirty percent of surgical prophylaxis was prescribed for greater than one day.

Surveillance of Healthcare Associated Infection (HCAI)
Bacteraemia:
The Department of Health (DH) began mandatory surveillance of MRSA bloodstream infections (bacteraemia) in 2001. Data is reported via the Health Protection Agency monthly and quarterly. This includes all MRSA bloodstream infections, whether acquired in the hospital or in the community and whether considered to be contaminants or not.

From January 1st 2011 it became mandatory for English NHS Acute Trusts to report Methicillin Sensitive Staphylococcus aureus (MSSA) and from 1st June 2011 to report Escherichia. Coli bacteraemia surveillance data to Public Health England (PHE).

Depending on the time and location of testing Bacteraemia are either apportioned to the acute trust or non-acute settings. When an in-patient, if identified on day 1 or 2 of

admission (with day 1 being admission day) the case is considered non-acute apportioned and if identified on day 3 or later the case is considered hospital apportioned. However, if apportioned to the community setting any recent inpatient activity would be investigated as a component of the Post Infection Review (PIR) or Root Cause Analysis (RCA).

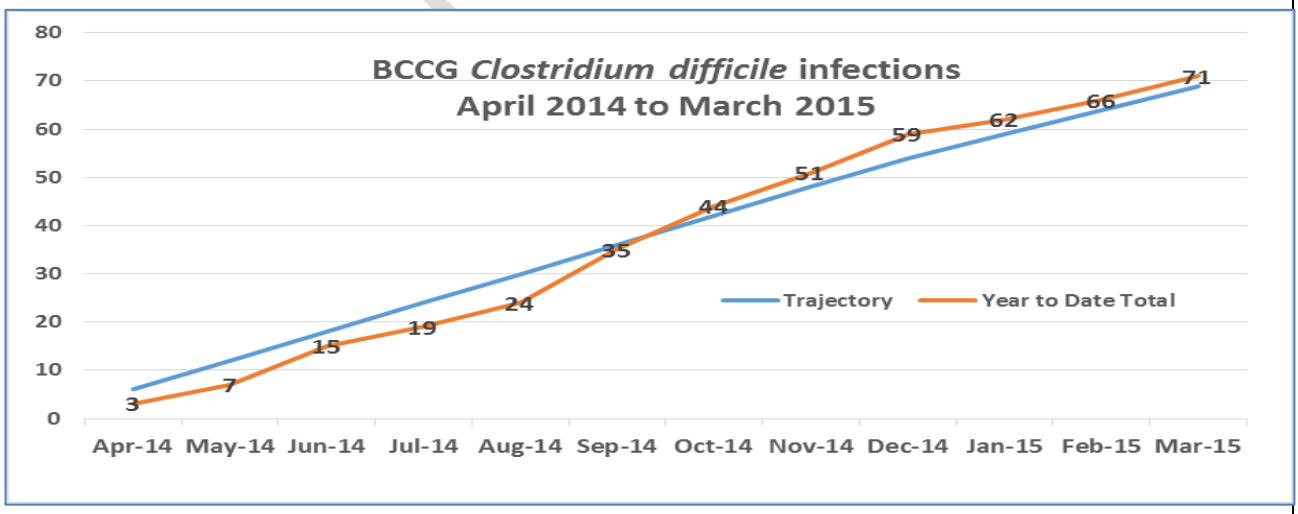
What do we know? Facts, Figures, Trends

The profile of Infection prevention and control (IPC) has been raised significantly over the last few years due to increased public awareness and the publication of the Health and Social Care Act (2008) Code of Practice for the Prevention and Control of Healthcare Associated Infections (updated 2011). This legislative Act means everyone involved in healthcare provision must demonstrate acceptable standards of infection prevention and control.

Clostridium Difficile:

Since 2004 the reporting of Clostridium difficile infection has been mandatory. All NHS Trusts are required to test all diarrhoeal stool samples submitted to the microbiology laboratory for examination in accordance with the Department of Health (DOH 2012) guidelines. All episodes of infection are reported via the Public Health England (PHE) mandatory enhanced surveillance system. An episode consists of one or more GDH EIA and C-diff toxin positive stool during a 28 day period. Targets have been set for all NHS organisations, including Clinical Commissioning Groups (CCG). CCG targets are based on cases amongst the population, for which the CCG is responsible, whether acquired in acute hospitals or within the community.

Figure 15 showing C.Diff infection cases apportioned to Bedfordshire clinical commissioning group

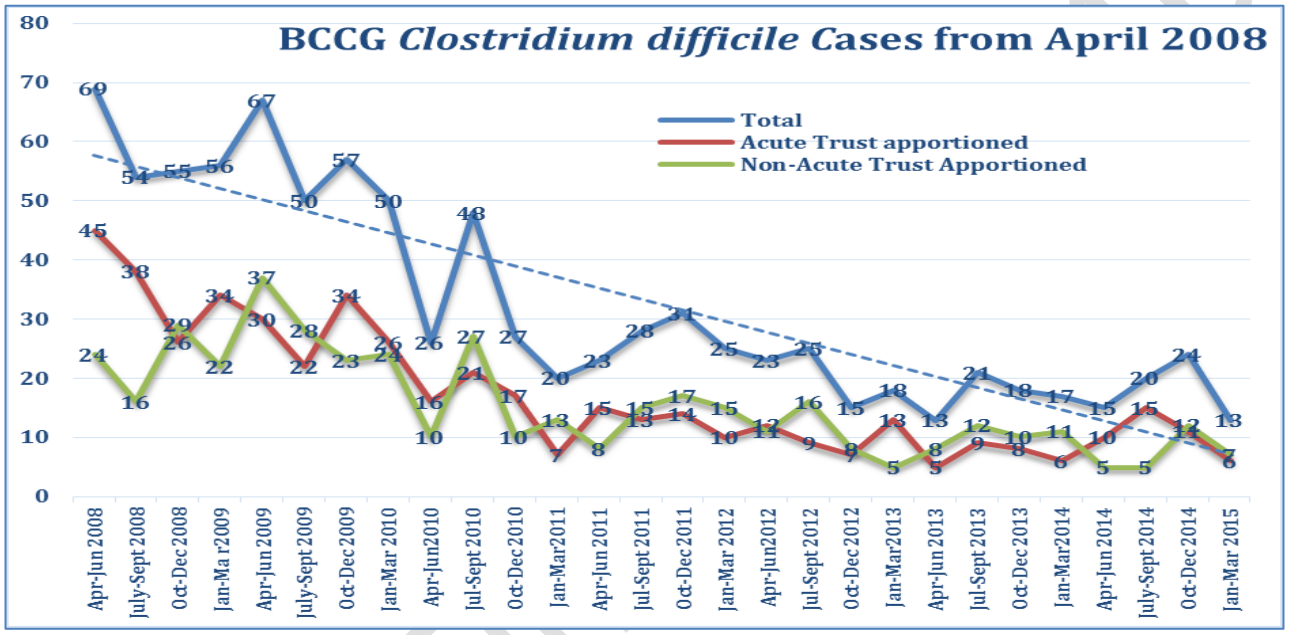


Source: BCCG Health Protection Committee report, December 2015

The number of CDI cases within BCCG reached 72 for patients aged 2 years and over against an annual ceiling of 69. Of these 29 were deemed to be acute trust apportioned

cases and 43 were deemed to be non-acute trust apportioned cases (diagnosed from samples taken within 48 hours of admission to the hospital or taken in the community). There are now more non-acute trust cases over the year than acute trust apportioned which may reflect earlier patient discharge and patient management within the non-acute setting. Of the non-acute cases 18 patients had been in an acute trust within the last 4 weeks and a further 6 within the last 12 weeks, a total of 56% of the non-acute apportioned cases.

Figure 16 showing Trend of C diff infection apportioned to BCCG since 2008



Figures below showing BCCG C.Diff cases apportioned to our local acute trusts fig 17a (L&D) and 17b (BGH)

Figure 17a

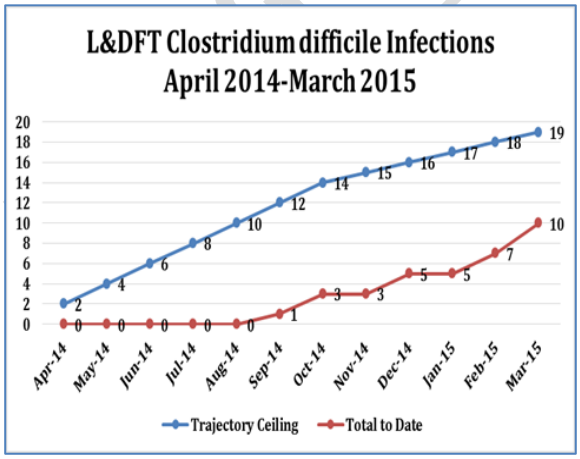
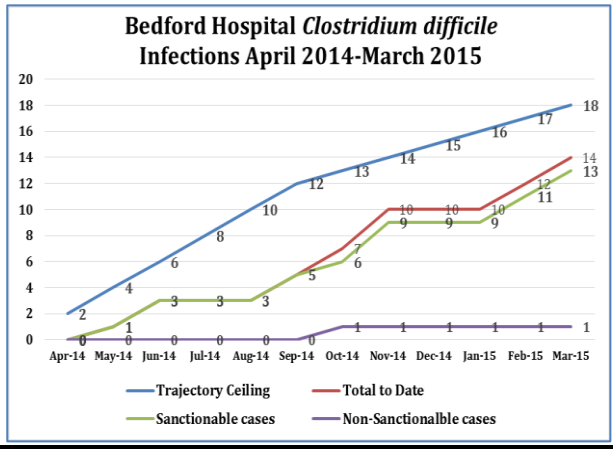


Figure 17b



Bedford Hospital finished the year below the set objective with 13 sactionable cases against a ceiling of 18 for the year. One case was appealed and found to be non-sactionable as no breakdown in care was identified.(fig 17b)

Luton and Dunstable Hospital were below the set objective with 10 cases against a ceiling of 19 for the year. This was the second lowest within the Area Team.(fig 17a)

BCCG has an infection rate of 17.17 per 100,000 of population which is the lowest within the area team despite being above the set objective for the year. This may represent an irreducible minimum number of infections for the year.

Benchmarking within the area team shows Bedford Hospital has an infection rate of 11.11 cases per 100,000 occupied bed days which is below the set objective and the fourth lowest within the area team.

Luton and Dunstable has an infection rate of 5.52 cases per 100,000 occupied bed days which is the second lowest within the Area Team and below the set objective of 19 cases

Care Homes Cases

9 patients with CDI were known to reside in care homes. On review of these cases all were from different care homes. Six cases were hospital apportioned and 3 were non-acute apportioned cases. All patients were over the age of 70 years with the majority being over 80 years. All patients had several serious co-morbidities including dementia, type 2 diabetes, cardiac problems and gastro-intestinal disturbance making them higher risk of CDI development.

Non-acute Cases

There were a total of 43 non-acute apportioned cases of CDI for the year. 28 (65%) of the non-acute cases had their specimen taken at admission to hospital (within 48 hours) and 15 (35%) had their specimen sent by the GP.

Over a half of the non-acute trust cases of CDI had been an in-patient within the last 3 months. 18 within the last four weeks (healthcare associated cases) and a further 6 within the last twelve weeks (indeterminate community case).

GP Cases - 15 cases were identified by the GP none of these patient resided in a care home.

C.Diff related deaths: C. difficile associated death is reportable when documented on part 1 of the death certificate (cause of death). All reportable cases would be subject to a serious incident review and full root cause analysis with development of an action plan to support lessons learnt.

During April 2014-March 2015 there was 1 death within BCCG where CDI was given as the reason for death (Part 1a) and a further 2 deaths where CDI had contributed to death (Part 2) recorded on the death certificate. There was a fourth case in which CDI was on the death certificate but it was not clear form the data received which part it was entered in.

System wide meetings regarding Clostridium difficile take place bi-monthly to review all aspects of Clostridium difficile management. Membership includes all acute and non-acute providers, Public health England, CCGs and Public Health.

System-wide Actions agreed were:

- Full review of all cases of CDI with feedback to all relevant parties including clinicians, GPs and other provider services highlighting any issues, lessons learnt and good practice. In this n way it helps to keep this infection high profile to all provider organisations.
- Antimicrobial stewardship groups in progress for all providers to include surveillance of antimicrobial usage, guidance/policy updates and prescribing issues. Medicines management continue to monitor GP antibiotic prescribing
- In-patient stay area are monitoring time to isolation with an emphasis on rapid isolation and testing for all patients with diarrhoea
- Communication among all providers and ways to improve this.

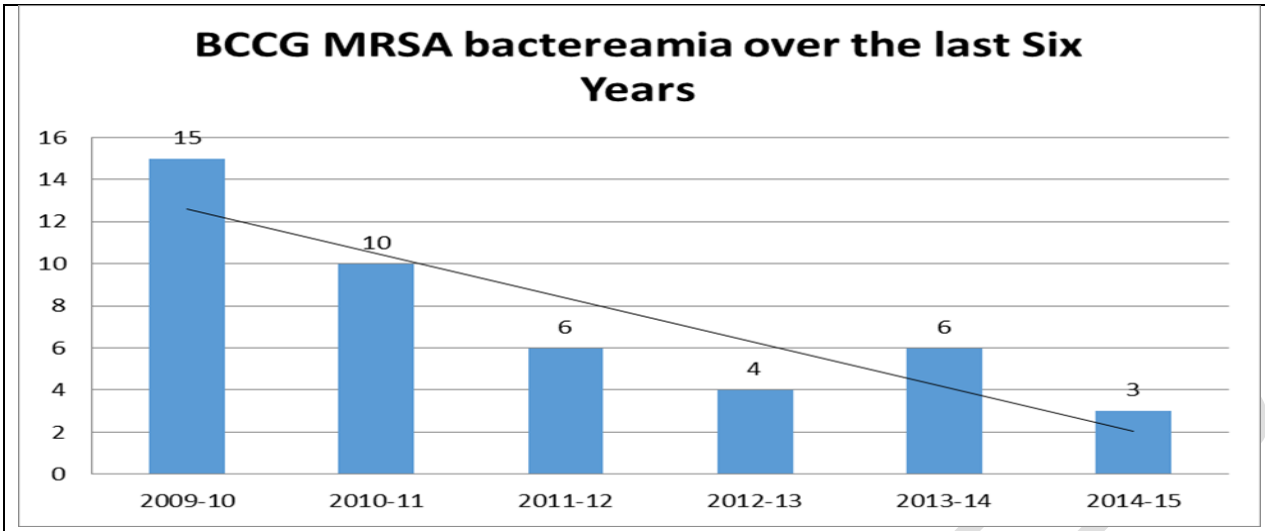
Acute provider action plans to be discussed at the system-wide meetings as part of the on-going actions plan.

Methicillin Resistant Staphylococcus Aureus (MRSA)

Staphylococcus aureus is a common coloniser of human skin and mucosa, but can cause disease, particularly if there is an opportunity for the bacteria to enter the body. Methicillin-resistant Staphylococcus aureus (MRSA) are a subset of Staphylococcus aureus resistant to most β-lactam antibiotics such as flucloxacillin that are normally used to treat Staphylococcus aureus infections. Most patients who are colonised with MRSA do not go on to develop an infection, but colonisation is a known risk factor. Reporting of MRSA bacteraemia has been mandatory in England since April 2001 when the Department of Health (DH) began mandatory surveillance. Reduction targets have been set year on year since then with the goal of no avoidable infections and since April 2013 there has been a zero tolerance objective nationwide.

The final number of cases of MRSA bacteraemia for BCCG was 3 against a zero tolerance ceiling nationally for the year. 1 case was identified as hospital apportioned to Bedford Hospital NHS Trust and 2 cases were non acute apportioned. A full review was carried out for each case with all providers involved in the process. Luton and Dunstable hospital Foundation trust finished the year with 4 cases of MRSA bacteraemia but all cases were non-BCCG patients

Fig 18 showing MRSA bacteraemia cases apportioned to BCCG patient population



Source: Patient Safety and Quality Committee report, 14th May 2014

BCCG has an infection rate of 0.73 cases per 100,000 of population which is the second lowest in the South Midlands and Hertfordshire Area Team.

Benchmarking within the area team shows Bedford Hospital NHS Trust has an infection rate of 0.79 cases per 100,000 occupied bed days which was the third lowest within the South Midlands and Hertfordshire Area Team.

Luton and Dunstable has an infection rate of 1.52 cases per 100,000 occupied bed days which was fifth within the South Midlands and Hertfordshire Area Team.

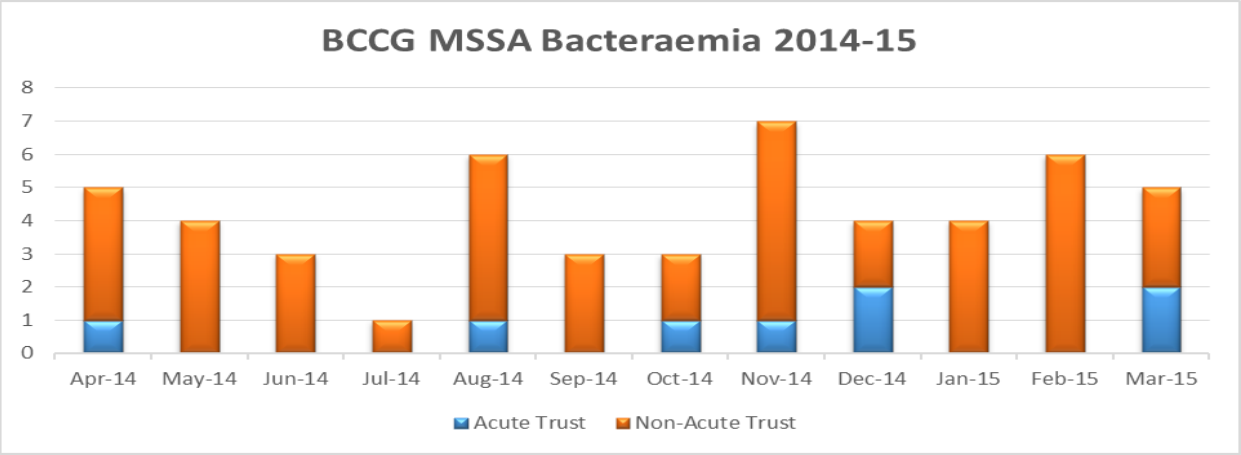
From the Post infection review the following were identified:

Wound swabs not always included in the MRSA screening process when patients were admitted; labelling of wound swabs needs to be more robust as the site was not always fully identified on the request form so therefore not reported in the result. This means that for patients with multiple wounds it is impossible to identify the correct site affected; and Increased risk for patients with severe skin conditions or older patient with frail skin/poor skin condition.

System-wide Actions were taken to strengthen MRSA bacteraemia prevention: Strengthening the clinical input at the post infection review meetings so that lessons learnt are given a priority and immediate actions can be taken; dissemination and discussion of findings across the whole health economy via the system wide group were carried out to share practice and learning. Antimicrobial stewardship and policy reviews were also carried out by provider organisations

Methicillin Sensitive Staphylococcus aureus (MSSA) Bacteraemia

Figure 19 allocation of MSSA bacteraemia to BCCG



On the 30th April 2014 an Information Manager for PHE Field Epidemiology Services reported an exceedance in the data for MSSA blood cultures from Luton and Dunstable Foundation trust. This refers to the number of positive specimens reported by the laboratory over the month of April 2014 regardless of their source. Exceedance calculation is based on seasonal patterns (what happened at this time over the last few years). April 2014 is high compared to the months of March - May in 2011, 2012 and 2013).

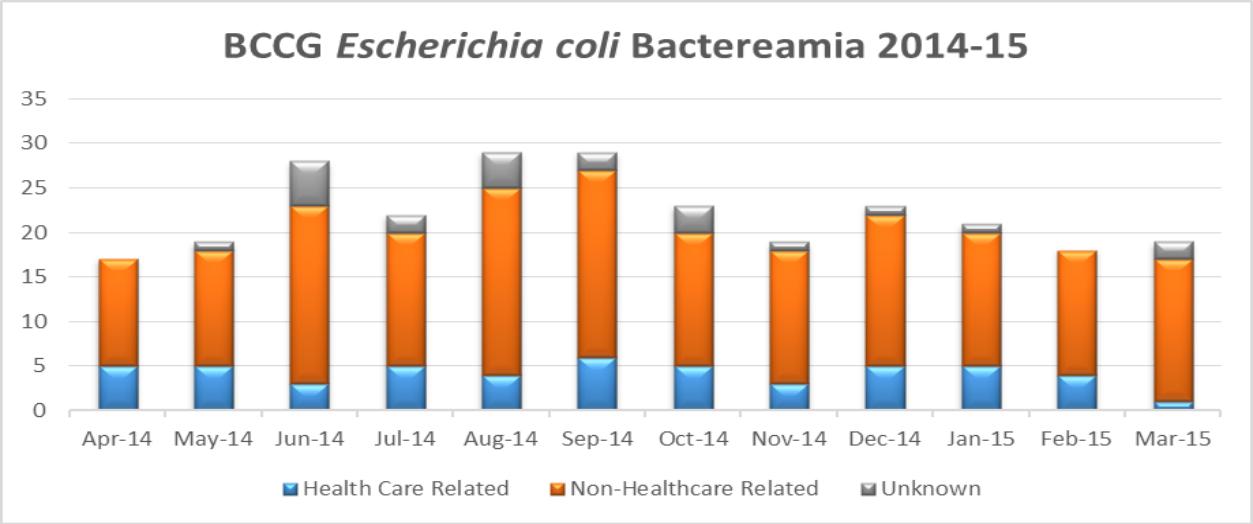
11 cases (BCCG and LCCG patients) were identified over the month with only one case being hospital apportioned with the source of infection thought to be a chest infection. A review of all cases was carried out to determine if there was any connection between cases or links to healthcare. Two cases were linked to healthcare but not to each other, all other cases were found to be sporadic with no link to healthcare.

Escherichia coli (E. coli) Bacteraemia

Enhanced mandatory surveillance for E. coli bacteraemia was commenced in June 2011 and all cases must be reported and an investigation carried out to determine if the case may be healthcare related. Presently no targets have been set.

In 2014/15 BCCG had a total of 271 cases identified, with 51 cases identified as possibly/likely healthcare related. From data supplied to the healthcare associated data capture system the largest identified source of these infections is the urinary tract and of these only 14 may be device (urinary catheter) related.

Figure 20 showing E.Coli Bacteraemia apportioned to



National and Local Strategies (Current best practice)

i. *Healthcare associated infection: http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publichealth/Healthprotection/Healthcareassociatedinfection/index.htm*
i. *Mandatory surveillance of orthopaedic surgical site infection and C. difficile associated diarrhoea; accessed through http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/Bulletins/theweek/Chiefexecutivebulletin/DH_4080306*
i. *NICE infection Prevention and Control Clinical standard 61 Available at: http://publications.nice.org.uk/infection-prevention-and-control-qs61#close*

Mandatory surveillance of *Clostridium difficile* associated disease (CDAD) in people aged 65 years and over has been included in the healthcare-associated infection surveillance system for acute trusts in England since January 2004. This scheme is operated by the HPA (now PHE) on behalf of the DH. Data are collected quarterly from each of the 169 acute NHS trusts in England that treat adult patients.

Acute NHS trusts in England are required to report all cases of CDAD in patients aged 65 years and over. This applies whether *C. difficile* is considered to have been acquired in that trust, in another hospital or in the community. Cases are defined as all diarrhoeal specimens that test positive for *C. difficile* toxin where the patient has not been diagnosed with CDAD in the preceding four weeks. The criteria for testing for infection and reporting cases were defined by the National Clostridium difficile Standards Group. All acute trusts are also required to participate in a random sampling scheme to enable strain characterisation. This began in January 2005. New ambitions have been set for the NHS which builds on the progress made on infections last year. The NHS is being asked to collectively reduce the numbers of infections on MRSA by a further 29% and Clostridium

difficile (C. difficile) by 17%.

National Institute for Health and Clinical Excellence (NICE)

NICE have published infection Prevention and Control Clinical standard 61 (April 2014). Available at: www.nice.org.uk/guidance/qs61#close

The care standard covers the prevention and control of infection for people receiving health care in primary, community and secondary care settings. It is expected to contribute to improvements in infection rates and avoidable death from healthcare associated infections and has 6 quality statements:

1. *People are prescribed antibiotics in accordance with local antibiotic formularies as part of antimicrobial stewardship.*
2. *Organisations that provide healthcare have a strategy for continuous improvement in infection prevention and control, including accountable leadership, multi-agency working and the use of surveillance systems.*
3. *People receive healthcare from healthcare workers who decontaminate their hands immediately before and after every episode of direct contact or care.*
4. *People who need a urinary catheter have their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed.*
5. *People who need a vascular access device have their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the device and its removal as soon as it is no longer needed.*
6. *People with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate), are educated about the safe management of the device or equipment, including techniques to prevent infection.*

The quality measure accompanying the quality statements aim to improve the structure, process and outcomes of care in areas identified as needing quality improvement. This document has been circulated to the infection prevention and control teams at each provider organisation.

What are the unmet needs/ service gaps?

BCCG continues to work closely with all providers to ensure a continued reduction of Health care acquired infections with review and feedback of all cases, regular system-wide meetings to discuss issues, learning and innovations and focus on good antibiotic stewardship. However, the objectives for the current financial year are once again challenging and will require continued vigilance in this area:

i. Robust process to challenge excessive and inappropriate prescribing of Antibiotics and further GP ownership of all cases (does not mean GPs are responsible for infection);
ii. Patient education about the treatment compliance and importance of

adherence to the prescribed dose and course;

iii. Sharpening Root cause analysis for all HCAIs.

iv. Ensure local policy on Infection Control is implemented at the practice and apply Infection Control measures (hand washing, use of PPE, handling sharps, decontamination, sterilisation, disinfection and patient isolation) in managing patients.

v.

Recommendations for consideration:

i. Support and adopt Zero tolerance approach for all avoidable HCAI

ii. Significant engagement with partner agencies, increased discussion with all acute providers and further GP ownership of all cases. Ensure commissioners, providers and other partner agencies involved in performance management comprehensively comply with mandatory surveillance process.

iii. Year-end review of data, with sharpened regular root cause analysis (RCA) for better understanding the causes of these infections and, where appropriate, use in making improvements in infection prevention and control practices. The availability of a more comprehensive picture of the scale of HCAI, nationally and locally, will support clinicians and patients in making meaningful choices about providing and receiving healthcare.

iv. Identify and address risk reduction: Apply infection control measures at all levels, implement infection control policies. Maintain infection control capacity. Educate clinicians to comply with antibiotic policy and patients to adhere with the antibiotic treatment.

v. Consider reduction plan for E-coli and MSSA bacteraemia**:** In line with the requirement stated in the NHS Operating Framework 2011/12, that organisations should plan to make “sufficient progress in collecting and analysing data on MSSA and E. coli bacteraemia", it may also be possible to reduce rates of the subset (around 30%) of E. coli bacteraemia occurring in hospital inpatients through the same mechanism. Additionally a proportion of cases are likely to relate to healthcare in the community and by focussing on this as well, it may also be possible to reduce rates of E-coli infection. Bedfordshire is not yet required to set reduction plans at this stage. It should comprehensively comply with mandatory data reporting to support establishing robust base line of HCA E.coli infection. Bedfordshire in discussion with its participating agencies may consider what additional interventions could be introduced to minimise E.Coli infections.

vi. NICE have published infection Prevention and Control Clinical standard 61 (April 2014). The care standard covers the prevention and control of infection for people receiving health care in primary, community and secondary care settings. This document has been circulated to the infection prevention and control teams at each provider organisation. Providers should ensure that the quality measure accompanying the quality statements aim to improve the structure, process and

outcomes of care in areas identified as needing quality improvement.

Current Services:

Childhood Immunisation:

In Bedford Borough, general practices deliver the childhood immunisation programme for children aged 0-5 years and South Essex Partnership Trust (SEPT) 0-19 Service deliver immunisations to older children.

Tuberculosis:

Patients living in Bedford Borough will predominantly access TB services commissioned by NHS Bedfordshire CCG and provided by Cambridgeshire Community Services, based at the Luton and Dunstable Hospital.

The following services provided as part of the wider service delivery:

i. **Screening and diagnosing:** active and latent TB. Screening is undertaken on a range of patient groups including new entrants, high risk groups and contacts of diagnosed TB cases.
ii. **Treatment:** Patients diagnosed with latent TB will be started on the appropriate medication regimen and are managed within the TB service as long as they remain non-complex. Patients with active TB will commence an appropriate treatment regimen, guided by a Chest Physician at the Luton & Dunstable Hospital, supported by the TB Service.
iii. **BCG immunisation** is delivered as part of a targeted immunisation programme for those screened as being at high risk of contracting TB.

Seasonal Influenza Vaccination:

NHS England through its local NHS providers will deliver the programme. GP practices are the main source of free influenza vaccinations for people in an identified risk category. This is available during the national flu vaccination campaign, which usually runs from October to January each year. For pregnant women there is an argument for having midwives provide seasonal flu vaccination in order to facilitate vaccination. The setting for this is likely to remain the GP practice in most cases, and such a service development will require development of a service specification and contractual arrangements.

Each year influenza immunisation uptake is monitored for all of the risk categories and PHE will continue to be responsible for coordinating and monitoring the data collection for influenza vaccine uptake and reporting of national data on influenza immunisation of eligible patient groups and frontline healthcare workers.

It is the employers' responsibility regarding arrangements for vaccination of healthcare workers in direct contact with patients and in social care settings and should make vaccines available free of charge to employees if a risk assessment indicates that

they are needed. Public Health in the local authority is responsible for providing support to NHS agencies and ensuring the successful delivery of the flu vaccination programme.

Hepatitis B and C:

The following providers are involved in supplying services for Hepatitis B and C:

- *South East Partnership trust (SEPT)* provides the following services at HMP Bedford:
  - Day 1 – All prisoners given information on BBV on reception
  - Day 2 – All offered blood tests for BBV at 'well man's screening'
  - All prisoners have to make appointment for blood test at the next available clinic on a Monday
  - Results are sent to the prison doctor electronically and prisoners are referred to GUM if positive.

- *Yarlswood Immigration removal centre* provides the following services at Milton Ernest and Bedford:
  - Offer serology tests for all BBV's if requested or are high risks.
  - Referral to Hepatology and / or GUM if required

- *Bedford GUM Service* offers tests for all BBV's at Bedford Hospital Trust.

- *Luton and Dunstable GUM Service* offers tests for all BBVs at the Luton and Dunstable Hospital Trust

- Brook Sexual Health Service in Bedford offers tests for all BBVs.

- The following *sphere clinics* offer tests for all BBVs:
  - Asplans Surgery;
  - Woburn sands;
  - Cranfield Surgery;
  - 12, Goldington Rd Surgery Bedford;
  - Great Barford Surgery;
  - Houghton Close Surgery Ampthill;
  - Kirby Road Surgery Dunstable;
  - Leighton Road Surgery Leighton Buzzard;
  - Linden Road Surgery Bedford;
  - Pemberley Ave Surgery Bedford;
  - Putnoe Medical Centre Bedford; and
  - Wootton Healthy Living Centre.

Health Care Acquired Infection:

As of April 2007 all acute NHS Trusts in England are required to report all cases of CDI in patients aged 2 years and over. All NHS trusts are responsible for uploading their surveillance data each month and PHE (formerly the Health Protection Agency) produces tables of counts of CDI on a monthly and annual basis. Every quarter the data collected in the enhanced surveillance is used to produce epidemiological commentaries

What are the main findings for health protection?

Key Findings:

i. Uptake of Seasonal Influenza vaccine in carers and in persons with serious medical conditions needs improvement and flu immunisation for carers working at care homes/residential homes commissioned by local authorities needs attention as uptake is not as expected.

ii. Preschool booster, especially MMR coverage although better than England and EOE, needs further improvement as it has not met its target of 95%.

iii. To make our current Tuberculosis aligned to National TB strategy and NICE compliant; processes for identifying high risk new entrant pateints should be in place and screening should be offered to all high risk patients at the time of the registration. Two practices within Bedfordshire have offered Latent TB infection screening and out of the total screened 18% were positive with LTBI. There are insufficient arrangements for the opportunistic identification of children aged 4 weeks to 16 years requiring targeted BCG vaccination.

iv. Bedfordshire Clinical commissioning Group (BCCG) has seen an overall reduction in cases since reporting began. However, in the year 2014-15, incidence rate of MRSA/100,000 has exceeded its trajectory of zero tolerance.

v. Between April 2014 and March 2015 there were a total of 72 cases of CDI in patients aged 2 years and over. Despite being over the set objective the CCG finished lowest within the region with 17.17 cases per 100,000 of population.

vi. High level of uptake for Antenatal screening at both the local hospitals. However we are unable to analyse screening outcome data beyond the level of acute Hospital Trust. This inhibits the compilation of trend data relating to HIV, Syphilis, Hepatitis B and Rubella.

Key Inequalities:

i. When GP practice level performance is considered against the Indices of Multiple Deprivation (IMD) Index score, no clear relationship is observed for any of the 6 immunisations delivered between birth and 5 years of age. This suggests that across Bedford Borough, level of deprivation does not influence level of immunisation uptake.

Further work is required locally to understand the factors that might be adversely affecting immunisation uptake.

ii. Uptake Influenza vaccination by the population in Bedford borough council is below the national targets especially in people with long term conditions and pregnant women. Although there has been improvement recorded in people age 65 + and people age below 65 with a long term condition, we still have to reach out to 15% of the eligible vulnerable population to have a positive impact on reducing premature mortality. Part of this picture is wide inequality in uptake of seasonal influenza vaccination between GP practice registered populations, with some practices not able to influence over half of patients in some risk categories.

iii. Lack of full immunisation history as a part of the routine health screening when prisoners are sentenced into the prison and vaccinations records update are not available as per the DOH(2012) requirement.
iv. There is no reliable national data related to the prevalence of communicable disease in our local prison, beyond HIV, Hepatitis B and C.
v. POCT (Point of care and testing) not available at the detention centre. All the detainees are not offered Hepatitis B vaccination when entering the centre.
vi. There is a gap in the patient/ prisoner's care pathway for prisoners at risk of becoming homeless, and for formerly homeless prisoners, Health services involved in their care should ensure that this population remains connected with health services.
vii. Gap in services for homeless migrants in promoting and facilitating screening and treatment. More needs to be done to facilitate screening in this population especially for infectious diseases, particularly HIV, Hepatitis B, C and TB, and where appropriate haemoglobin electrophoresis and full antenatal screening.

Key recommendations

i. Planning a targeted approach to improve our immunisation uptake (Flu and preschool boosters) with multi agency involvement.
ii. Joint campaign in conjunction with partner agencies to raise awareness about Infectious and non-infectious disease screening uptake especially cervical cancer screening in young women.
iii. Jointly agreed communication strategy and pathway between both local authorities and all the partner agencies involved. One responsible agency for safe cascading and disseminating consistent information to all relevant partner agencies and external agencies.
iv. Annual Infection control training to all carers and primary care professionals, also annual Immunisation update for primary care professionals (GPs and nurses) should be arranged. Community infection prevention is now a responsibility of Local authority under the leadership of DPH.
v. Identifying those who are homeless and prisoners who are at risk of becoming

homeless and keeping track of their health records and movements to other health services.

vi. Increase screening and diagnosis for Tuberculosis; review patient pathways as appropriate and advise the commissioning of surveillance, detection and provision of services for TB to make our current service NICE complaint and to fit national TB strategy.

vii. Developing a locally agreed, multiagency protocol to govern the management of infants born to Hepatitis B positive mothers. Also developing multiagency protocol to govern the postnatal management of women identified as Rubella susceptible.

viii. Improving early access time to required 10 weeks for maintaining uptake of antenatal and newborn screening indicators.

This section links to the following sections in the JSNA

i. Non communicable disease screening links with chapters on long term conditions Diabetes and Cancers
ii. Sexual health
iii. Sustainability and carbon management
iv. Environmental health

References

1. BASSH UK National guidelines on the management of the viral Hepatitis A,B and C 2008
2. British Thoracic Society (2009) *Commissioning TB Services* www.brit-thoracic.org.uk
3. *Clinical diagnosis and management of tuberculosis and measures for its prevention and control*, NICE).
4. Department of Health (2006) *Immunisation against infectious disease London*: TSO
5. Department of Health (2009) *Supply of TB drugs to patients – changes to regulations and advice on implementation [ARCHIVED CONTENT] Supply of TB drugs to patients changes to regulations and advice on implementation : Department of Health - Public health*
6. Department of Health (2009a) *Healthy Child Programme: Pregnancy and the first Five years of life London*: DH
7. Department of Health (2009b) *Healthy Child Programme: From 5-19 years old* London: DH
8. Department of Health (2011) *Hepatitis B antenatal screening and new-born Immunisation programme: Best practice guidance London*: DH
9. Department of Health (DH) (2009) Immunisation against infectious diseases – The Green Book www.dh.gov.uk
10. Department of Health (DH) (2011) Hepatitis B antenatal screening and new-born immunisation programme www.dh.gov.uk/publications

11. ECDC, Importance of Surveillance; Surveillance is essential to understanding the epidemiology of infectious diseases (2011). www.ecdc.europa.eu [external link]
12. European Centre for Disease Prevention and Control: Annual Epidemiological Report on Communicable Diseases in Europe 2008. Stockholm, European Centre for Disease Prevention and Control, 2008
13. European Medicines Agency, EU recommendations for the seasonal influenza vaccine composition for the season 2011/2012. Letter of the BWP ad-hoc influenza Working Group, 17 March 2011. EMA/CHMP/BWP/156215/2011. (http://www.ema.europa.eu/docs/en_GB/document_library/Other/2011/03/WC500103708.pdf)
14. Gamma Release Assays in the screening of contacts and new entrants for TB ThoraxVol. 62: Supp 3, S49A pA22
15. Gray, M. &Ormerod, L.P. (2007) An economic evaluation of the use of Interferon
16. Hirsch P, Hodgson M, Davey V. Seasonal influenza vaccination of healthcare employees: results of a four year campaign. Infection Control and Hospital Epidemiology, 2011; 32: 444-448.
17. HPA Hepatitis C in the UK 2012 report
18. http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947323575
19. http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317139321787 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/179349/green_book_complete.pdf.pdf
20. *managing tuberculosis among hard-to-reach groups* Public Health Guidance 37
21. National Audit Office, Improving patient care by reducing the risk of hospital acquired infection: A progress report, Report by the comptroller and auditor general HC 876 session 2003-4, London Stationary Office, 2004.
22. National Institute of Health and Clinical Excellence (NICE) (2011) *Tuberculosis:*
23. National Institute of Health and Clinical Excellence (NICE, 2012) *Identifying and*
24. NICE public health guidance 43. Dec 2012 Hepatitis B and C: ways to promote and offer testing to all people at increased risk of infection.
25. Public Health England http://www.hpa.org.uk/hpr/archives/2012/hpr3412_acthpb11.pdf
26. Public Health England http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/HepatitisB/
27. The National Institute for Health and Clinical Excellence (NICE) (2009) *Reducing Differences in the uptake of immunisations (including targeted vaccines) among children and young people aged under 19 years London*: National Institute of Clinical Excellence
28. UK national guidelines on safer sex advice July 2012 The Clinical Effectiveness Group of the British Association for Sexual Health and HIV (BASHH) and the British HIV Association (BHIVA) July 2012
29. UK National Screening Committee (UKNSCa) (2010) Infectious Diseases in Pregnancy Screening Programme, Programme Standards September 2010
30. UK National Screening Committee (UKNSCb) Infectious Diseases in Screening

Programme Handbook for Laboratories September 2010
31. The flu immunisation programme 2013/14. Letter from the Chief Medical Officer, the director of nursing and the chief pharmaceutical officer for England, Available at:www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Professionalletter
32. Department of Health: seasonal flu plan 2013-2014: http://immunisation.dh.gov.uk/
33. www.nice.org.uk/TA168
34. NICE have published infection Prevention and Control Clinical standard 61 (April 2014). Available at: http://publications.nice.org.uk/infection-prevention-and-control-qs61#close
35. PHE Tuberculosis (TB): collaborative strategy for England (Jan 2015). Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403231/Collaborative_TB_Strategy_for_England_2015_2020_.pdf