APPENDIX A

CAMBRIDGESHIRE HEALTH PROTECTION STEERING GROUP

ANNUAL HEALTH PROTECTION REPORT 2015

1. INTRODUCTION

1.1 This is the second annual report on health protection to the Cambridgeshire County Council Health Committee and to Cambridgeshire Health and Wellbeing Board (HWB).

1.2 The Health and Social Care Act 2012, on 1 April 2013, placed statutory responsibilities on the County Council, through the Director of Public Health (DPH), to advise on and promote local health protection plans across agencies, which complements the statutory responsibilities of Public Health England, NHS England, the Clinical Commissioning Group (CCG) and City and District Councils.

1.3 The delivery of the health protection functions of the County Council must be publicly reported so that members can assure themselves that statutory responsibilities are being fulfilled. Members of the public can also access this information for their own reassurance or research.

1.4 The HWB has statutory responsibilities and has developed a health and wellbeing strategy. Whilst much of this relates to health improvement, health protection is interwoven into the strategy's aims.

1.5 It was agreed that the DPH would deliver an annual health protection report to the Health Committee and the HWB to provide a summary of relevant activity. This report would cover the multi-agency health protection plans in place which establish how the various responsibilities are discharged.

1.6 The services that fall within Health Protection include :-

- Communicable disease and environmental hazards;
- Public health emergency planning
- Immunisation
- Screening
- Sexual health

2.0 KEY PRIORITIES IDENTIFIED IN THIS REPORT

2.1 Childhood immunisation uptake (section 5.2)

2.2 Seasonal Flu immunisation uptake by identified risk groups – those aged 2 – 65 with clinical risk and frontline health and social care staff (section 5.7, 5.8 and 5.9)

2.3 Cancer screening especially screening for breast and cervical cancer (section 6.1, 6.2, 6.3, 6.4)

2.4 Low uptake of diagnostic and treatment service for blood borne viruses, notably Hepatitis B and C by those accessing drug and alcohol services (section 10.4)

2.5 The implementation of new vaccination programmes and extension of others (school age flu vaccination) (section 10.1)

2.6 The implementation of the new national TB strategy (section 10.4)

3.0 CAMBRIDGESHIRE HEALTH PROTECTION STEERING GROUP

3.1 As explained in the 2014 report, the DPH is accountable to the Secretary of State for Health as well as to Cambridgeshire County Council, Cambridgeshire Health and Well-being Board and the Cambridgeshire population for providing advice on health protection in the county. The DPH has no managerial responsibility for other organisations that provide the services that deliver health protection. The Cambridgeshire Health Protection Steering Group (HPSG) was established in April 2013, chaired by the DPH, to support the DPH in fulfilling these statutory responsibilities.

3.2 The HPSG meets quarterly and in 2014/15 met in April, July and October 2014 and January and April 2015

3.3 Reports were received at each meeting on a number of standing items to provide assurance on health protection activities in Cambridgeshire, with other subjects reported by exception. Standing items have included:

- Immunisations – routine data as well as specific issues that have arisen – report from NHS England
- Screening – routine data and any specific issues that have arisen – report from NHS England
- Healthcare associated infection and antimicrobial resistance – reports from the CCG
- An update on health emergency planning and updates from the Local Health Resilience Partnership (LHRP)
- Tuberculosis including the new national strategy, BCG vaccination and incidents.

3.4 At its meeting on 30 January 2015, the HPSG agreed a set of shared priorities to focus on in 2015/16 and inform agenda planning - the three priorities will be standing agenda items:

- Public communication to support uptake of immunisation and screening (e.g. cervical screening uptake is low in Cambridge City) and some other issues such as use of anti-microbial drugs.
- TB to include consideration of vulnerable people
- Pandemic flu planning including planning for excess deaths

3.5 Memorandum of Understanding

In 2014, a Memorandum of Understanding (MOU) for health protection was developed to ensure agreement from all relevant organisations to provide reports and assurance to the Health Protection Steering group for Cambridgeshire and to collaborate with other partners in the response to any incident that affects public health in the county. This MOU was consulted on prior to issue and has been signed by the majority of partner organisations, approved by the Local Health Resilience Partnership (LHRP) and received by the Local Resilience Forum (LRF) for Cambridgeshire and Peterborough. At the time of publication it was agreed that it should be reviewed and, if necessary revised, after one year and the revised MOU issued to all partners for signature. The revised MOU should be complete by July 2015.

In practice this proved to be very helpful over the past year during the response to public health incidents, as it clarified responsibilities including financial responsibilities in an incident and meant that there were no delays while this clarification as sought.

3.6 Joint Communicable Disease Outbreak Management Plan

Development of this plan was led by Public Health England (PHE) with support from the public health teams in local authorities, and the plan was ratified by partner organisations and by the LHRP and LRF in 2014. The 2014 plan covers Cambridgeshire, Peterborough, Norfolk and Suffolk. This plan was re-issued for consultation early in 2015 with an intention to review any parts of the plan that need to be updated. Final ratification has been delayed as PHE has undergone re-structuring with the PHE Centre now also covering Essex. As the lead organisation for this plan is PHE, it is expected that the revised plan will also cover Essex and will need to be approved by all four LHRPs and LRFs in the PHE centre area.

3.7 While awaiting the final 2015 version of this plan, partners continue to use the 2014 plan which is still relevant and has been found to function very well when used to deal with outbreaks, including those listed below.

4.0 SURVEILLANCE

4.1 Notifications of Infectious Diseases

Doctors in England and Wales have a statutory duty to notify suspected cases of certain infectious diseases. This notification along

with laboratory and other data is an important source of surveillance data. The table below shows the notifiable diseases reported to the HPT from 1 April 2011 – 31 March 2015.

Table 1: Notifiable Diseases in Cambridgeshire to 31 March 2015

Notifiable Disease*	1 Apr 2011 - 3 Mar 2012	1 Apr 2012 - 31 Mar 2013	1 Apr 2013 - 31 Mar 2014	1 Apr 2014 – 31 Mar 2015
Acute encephalitis	0	<5	0	0
Acute infectious hepatitis	13	22	26	22
Acute meningitis	9	14	14	8
Enteric fever	<5**	<5**	<5**	<5**
Food poisoning	789	578	717	766
Infectious bloody diarrhoea	10	14	5	5
Invasive group A streptococcal disease	15	14	21	19
Legionnaires' disease	<5**	<5**	<5**	<5**
Malaria	10	7	10	10
Measles	21	55	35	19
Meningococcal septicaemia	<5**	<5**	<5**	<5**
Mumps	40	50	46	39
Rubella	7	8	<5**	13
Scarlet fever	20	48	44	127
Whooping cough	16	314	55	120

SOURCE: Anglia HPT HPZone

* *Notifiable diseases with no reported cases during the four years are not listed here*

** *Because of the confidentiality risk associated with reporting very small numbers, where there are 5 or fewer cases they are reported as <5*

4.2 During the 2014-15 period of the notified cases, there have been only two laboratory confirmed cases of measles, 12 confirmed mumps and no confirmed rubella cases – other cases reported are those where the disease has been clinically diagnosed and reported by the GP without laboratory confirmation.

4.3 Scarlet fever cases rose nationally in April/May 2014 and March/April 2015. The median age of cases was four years.

4.4 Whooping cough also increased in 2014/15 with 69% of the cases being laboratory confirmed.

4.5 It is particularly important to note the number of cases notified that are of illness which could have been prevented by immunisation, in particular Mumps, Measles, Whooping Cough, Rubella (German measles), each of which can have serious long term health consequences, especially when also considering the childhood immunisation uptake data later in this report..

4.6 Communicable Disease Outbreaks and Incidents Cambridgeshire, April 2014 to March 2015

Table 2 below was reported by the Health Protection Team (HPT) of PHE for the 12 months to March 2015 of the number of outbreaks of different types of communicable disease that they dealt with during that period. Respiratory virus includes influenza outbreaks.

Table 2: Outbreaks investigated by PHE HPT in 2014/15

Gastroenteritis	Healthcare associated infection	Respiratory virus	TB	Environmental/ Chemical	iGAS	Other infectious disease	Other	Total
37	2	5	3	3	2	7	5	64

SOURCE: HPZone

4.7 **Principal Context of Incidents and Outbreaks**

The following table shows the environments in which outbreaks occurred.

Table 3: location of incidents and outbreaks

Care home	Hospital	Educational institution	Other
37	9	8	10

SOURCE: HPZone

5.0 PREVENTION

The focus of this section is Immunisation and Screening programmes. NHS England East Anglia Area Team leads on commissioning of the following programmes for the population of Cambridgeshire;

- Cancer Screening: Breast, Cervical and Bowel Cancer,
- Adult and Young People Screening: Abdominal Aortic Aneurysm (AAA) and Diabetic Eye Screening(DES),
- Antenatal and Newborn Screening programmes,
- Immunisation Programmes: neonatal and childhood, school age and adult immunisations

The team provides regular updates on screening and immunisations to the Cambridgeshire HPSG.

5.1 IMMUNISATION PROGRAMMES

Uptake of childhood immunisations is low in Cambridgeshire. Following discussion at the Cambridgeshire HPSG, a Task & Finish Group is to be established in Summer 2015 to review detailed data on immunisation uptake across the county, which will include mapping to identify areas in which uptake is particularly low. This will enable a

targeted approach to the development of plans to address issues identified with a view to improving coverage. The full year data for 2014/15 is not yet available so the table below only gives data for the first three quarters of 2014/15, up to 31 December

A brief explanation of the childhood universal vaccination schedule is given in Appendix 2.

5.2 Childhood Primary Vaccinations

The table clearly shows that the target for uptake of childhood immunisations is 95%. This is the uptake level that ensures herd immunity in the local population. When a high percentage of the population is vaccinated, it is difficult for infectious diseases to spread because there are not many people who can be infected. For example, if someone with measles is surrounded by people who are vaccinated against measles, the disease cannot easily be passed on to anyone, and it will quickly disappear again. This is called 'herd immunity', and it gives protection to vulnerable people such as newborn babies, elderly people and those who are too sick to be vaccinated and to those whose immune system is weakened and prevents them developing a good level of immunity when vaccinated.

Analysis of the data has shown that there are pockets of poor uptake in Cambridgeshire which has led to the Health Protection Steering Group recommending that a piece of work is undertaken, led by PHE/NHS England in collaboration with Cambridgeshire County Council and other partners. The focus of this work will be to understand the causes of the declining uptake and start setting out actions this. A Task and Finish group is being established with terms of reference to identify areas of lower immunisation uptake, understand the cause and make recommendations to reverse this trend.

Table 4: Childhood vaccination uptake in Cambridgeshire 2014/15

12 months DTaP/IPV/Hib [target 95%]				
	Q1 2014/5	Q2 2014/5	Q3 2014/15	Q4 2014/5
Cambs	95.3	93.3	93.8	94.8
East Anglia	95.6	95.0	96.0	95.6
12 months PCV [target 95%]				
Cambs	95.1	92.9	93.4	94.6
East Anglia	95.3	94.6	95.8	95.3
24 months DTaP/IPV/Hib [target 95%]				
Cambs	94.5	94.5	95.6	94.4
East Anglia	96.4	96.6	96.9	96.4
24 months PCV Booster [target 95%]				
Cambs	92.2	91.3	91.1	91.6
East Anglia	93.6	93.7	94.0	93.9
24 months Hib/Men C [target 95%]				
Cambs	91.9	91.5	91.8	91.5

East Anglia	93.9	93.7	94.0	94.0
24 months MMR 1 [target 95%]				
Cambs	90.8	90.6	90.2	91.4
East Anglia	93.1	93.2	93.3	93.5
5 years DTaP Hib [target 95%]				
Cambs	93.9	94.0	93.7	94.2
East Anglia	96.0	95.7	96.3	95.8
5 years MMR 1 [target 95%]				
Cambs	91.3	90.7	90.8	91.3
East Anglia	94.1	93.5	94.2	94.1
5 years MMR 2 [target 95%]				
Cambs	85.7	84.1	83.9	85.6
East Anglia	89.5	89.4	89.8	89.7
5 years DTaP/IPV Booster [target 95%]				
Cambs	88.7	85.3	85.0	86.3
East Anglia	91.1	90.1	90.8	90.7
5 years Hib/Men C [target 95%]				
Cambs	90.6	90.7	89.9	91.2
East Anglia	93.4	92.7	93.1	93.4

5.3 Rotavirus Vaccination programme

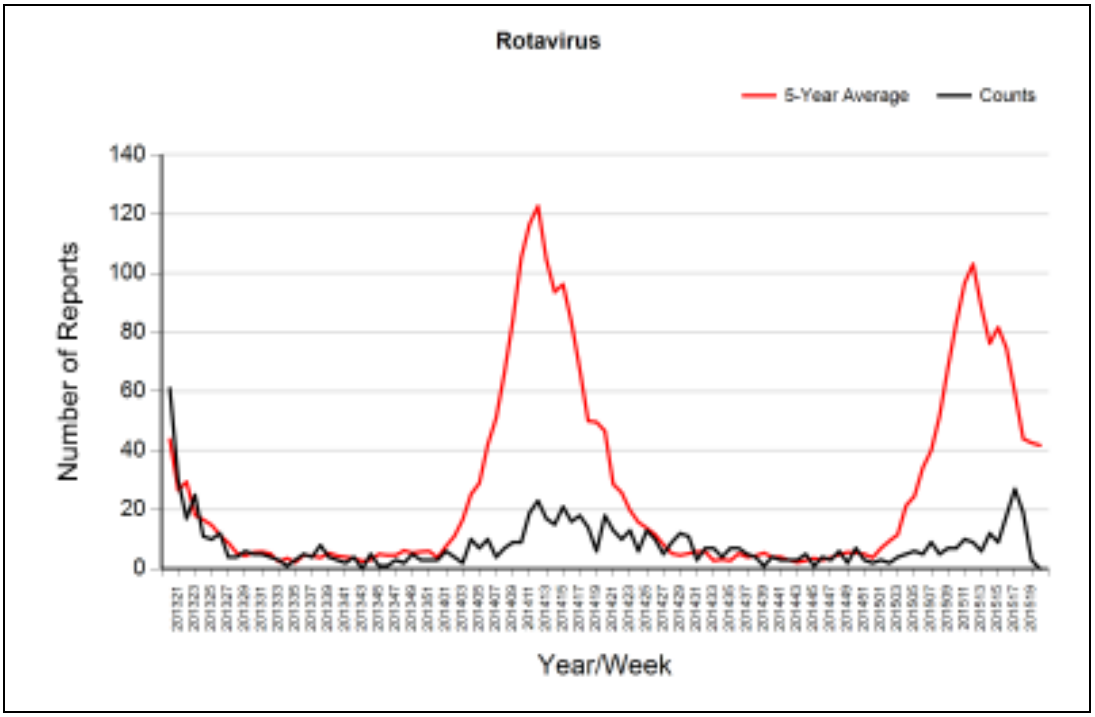
Rotavirus has been the most common cause of gastroenteritis in infants and very young children. It is highly contagious and, until the introduction of vaccination almost every child had an infection by the age of 5. Adults may become infected; however, repeat infections are generally less severe than infections during childhood. Rotavirus causes severe vomiting, severe diarrhoea, and stomach cramps, and frequently led to hospital admission. These symptoms usually last from 3 to 8 days.

The vaccine, introduced in July 2013, is an oral suspension that is given to infants at 8 and 12 weeks old. Uptake, while not yet over 95% is consistently high. The effectiveness of the vaccine is illustrated in the graph below, provided by the PHE Eastern Field Epidemiology team, giving weekly counts of Rotavirus infections reported from week 21 in 2013 to week 19 in 2015 set against the five year average weekly number of cases.

Table 5: Rotavirus vaccination uptake

	April 2014 %	May 2014 %	June 2014 %	July 2014 %	August 2014 %	Sept 2014 %	Oct 2014 %	Nov 2014 %	Dec 2014 %	Jan 2015 %	Feb 2015 %	Mar 2015 %
CCG	90.9	90.5	90.6	91.2	92.3	92.5	90.4	88.5	91.2	91.3	90.3	90.3
East Anglia	92.5	90.1	90.7	91.8	91.9	92.5	92.5	89.3	90.6	91.0	91.3	91.5

Figure 1: Rotavirus infections since start of routine vaccination



5.4 BCG Vaccination

BCG vaccination is for prevention of Tuberculosis (TB). It confers some immunity, and is recommended for newborn babies who:

- Are born in an area with a high incidence of TB – high incidence is defined by the World Health Organisation as 40 or more new cases per 100,000 population per year (Cambridgeshire rate is 5.6/100,000/year)
- Have one or more parents or grandparents who were born in countries with a high incidence of TB

Changes in commissioning arrangements for maternity units have led to the cost of neonatal BCG being included in the maternity contract tariff for all providers in England from April 2015. The model of good practice that the contract requires is that the baby should be vaccinated before discharge home from the maternity unit. In the past Cambridgeshire PCT commissioned a BCG service from a number of GP practices strategically located across the county to give good access to the vaccination and this has led to very good uptake. An interim arrangement is in place that allows the GPs to continue to take referrals of any babies that cannot be vaccinated before discharge while the maternity units increase their capacity to deliver BCG by providing training to their midwifery staff. At the request of the DPH, an evaluation template has been included with the trust contracts that

ensures regular (monthly initially) reporting of uptake among those eligible babies. This will be reported to Cambridgeshire HPSG.

5.4 School based immunisation programmes

There is good evidence that, for school age children, uptake of vaccinations is higher when they are given at school. Currently Cambridgeshire school children receive HPV vaccination at school. More recently changes in the schedule of the Meningococcal C vaccination has led to the second dose at 16 weeks being dropped and a booster dose introduced at age 14 years in school. In Cambridgeshire the universal school leaver booster of Diphtheria Tetanus and Polio vaccines around has, up to now, been given by GPs and uptake has been poor but from 2015, this vaccination will also be given in school. Contracts for the delivery of the school based immunisation programmes including school leaver booster has now been awarded to Cambridgeshire Community Services. This contract will include administration of the new flu vaccinations that are being gradually introduced for school age children.

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5.5 Human Papilloma Virus (HPV) programme

The Human Papilloma Virus (HPV) programme of vaccination of girls aged 12 – 13 has been very successful. HPV is a causative factor in Cervical Cancer.

Table 6: HPV vaccination uptake in school year 2013/14*

	1st dose	1st & 2nd doses	All 3 doses
Cambridgeshire	94.0%	93.8%	87.7%
England	81.3%	81.2%	77.1%

*As this programme runs over a school year, complete data for 2014/5 will not be available for some time

5.6 Seasonal Influenza vaccination programme - Children

A programme that will eventually see all children aged 2 - 16 offered Influenza (flu) vaccination each year began two years ago and so far has been rolled out to children age 2 – 5 years who are vaccinated by their GPs. A number of pilot programmes have taken place in schools to help plan for implementation across all schools eventually. In Cambridgeshire there was a pilot in 2014/15 in a small number of secondary schools with a good level of uptake.

Table 7: Flu vaccination uptake in Cambridgeshire school pilot programmes

Influenza Pilot	School yr 7 %	School yr 8 %
Cambs	67.4	61.9
East Anglia	62.2	58.2

As stated above, vaccination of younger children by their GPs began two years ago, and uptake is given in the tables below. The flu vaccine for children is given as a single dose of nasal spray squirted up each nostril. Not only is it needle-free (a big advantage for children), the nasal spray works even better than the injected flu vaccine with fewer side effects. In the case of some children in the at risk groups, two doses of the nasal spray will be needed. For many years prior to introduction of this universal programme, children aged from 2 years who are identified as having health conditions that cause them to be at greater risk of complications from Flu have been offered vaccination by injection each year. Uptake in the pre-school age groups is given in the two tables below. Uptake in Cambridgeshire is comparable to the rest of East Anglia.

Table 8: Flu vaccination uptake age 2 to 4

Cambridgeshire & Peterborough CCG						
	2yrs not in clinical risk groups %	2 yrs in clinical risk groups %	All 2 yrs %	3 yrs not in clinical risk groups %	3 yrs in clinical risk groups %	All 3yrs %
Period to Jan 2014	40.9	53.2	41.3	40.6	53.8	41.2
Period to Jan 2015	39.1	52.7	39.6	42.6	54.2	43.1
East Anglia to Jan 2015	40.0	54.0	40.6	42.3	55.9	43.0

Table 9: Flu vaccination uptake age 4 – added in 2014/5 season

Period to Jan 2015			
	4yrs not in clinical %	**4 yrs in clinical %**	**All 4 yrs %**
Cambs&P'boro CCG	33.5	51.6	34.5
East Anglia	33.2	51.6	34.3

5.7 Influenza vaccination uptake in clinical risk groups

In addition to the childhood groups mentioned above, the following groups are eligible for free annual seasonal flu vaccination, using an injected vaccine:

- those aged 65 years and over
- people aged from six months to less than 65 years of age with a serious medical condition such as:
  - chronic (long-term) respiratory disease, such as severe asthma, chronic obstructive pulmonary disease (COPD) or bronchitis
  - chronic heart disease, such as heart failure
  - chronic kidney disease at stage three, four or five
  - chronic liver disease
  - chronic neurological disease, such as Parkinson's disease or motor neurone disease, or learning disability
  - diabetes
  - splenic dysfunction
  - a weakened immune system due to disease (such as HIV/AIDS) or treatment (such as cancer treatment)
- pregnant women
- those in long-stay residential care homes
- carers

It is of concern that those in the at risk groups and pregnant women have such low uptake as flu can lead to serious long term complications and even death in these people. Each year detailed planning is undertaken to try to improve uptake and planning is now underway for the 2015/16 vaccination season.

Table 10: Flu vaccination uptake in clinical risk groups

Cambridgeshire & Peterborough CCG			
	Influenza [target 75%]		
	Over 65yrs	Under 65yr at risk	Pregnant
Period to Jan 2014	74.1	50.3	43.4
Period to Jan 2015	70.6	48.7	43.3

5.8 Influenza vaccination uptake in frontline healthcare workers

Flu vaccination has been recommended and provided free for many years to frontline health care workers as those who contract flu can put their patients at risk though passing flu to patients whose health is compromised by other medical conditions. The vaccination protects the staff who, in turn, can protect their patients and their families and friends by being immune to flu. This has the advantage of reducing the risk to vulnerable patients and also the risk to the health services of losing staff to illness or family care responsibilities during the very busy winter season. Despite the many benefits of flu vaccination to healthcare staff and the huge efforts made by their employers, uptake is disappointingly low in some organisations.

Table 11: Flu vaccination uptake – front line health care workers

Period to Jan 2015 [compared with 2012/13 and 2013/4]			
	Influenza Health Care Workers [target 75%]		
	2012/3	2013/4	2014/5 Jan 31st
CUHFT	45.6	49.3	47.5
CCS	37.0	51.5	52.6
Papworth	58.4	75.6	69.3
Hinchingbrooke	46.4	60.6	76.8
CPFT	23.7	54.2	51.2
PSHFT	71.5	75.3	69.5

5.9 Influenza vaccination uptake in frontline social care staff

The same arguments are made for vaccination of social care staff as for healthcare staff, as they are also in contact with very vulnerable groups. In 2014/5 flu season, Cambridgeshire County Council made flu vaccination available to employed staff that were identified as meeting the criteria for vaccination. The following groups of frontline staff were identified for vaccination:

- Older People front line staff
- Frontline LDP/PD staff
- Frontline Children's Disability staff
- Early years support frontline staff (children's centres)
- Staff in Children's residential homes

For these staff the decision was taken to offer financial reimbursement for the full cost of the vaccine to staff who obtained it independently through a local pharmacy. Information was distributed to staff, via their line manager, to promote awareness of the benefits of vaccination and to inform them of the process for reclaiming vaccine cost via their monthly expenses. It was agreed that uptake would be measured through direct reporting by front line staff and could also be measured through the expenses claims. The outcome of this approach was disappointing – see table below. The evaluation report of this programme is due to be discussed in June to inform planning for the 2015/16 season.

Table 12: Flu vaccination uptake, CCC employed front line social care staff

Service Area	No. eligible staff offered vaccine	No. staff vaccinated
LDP (3 teams) only one team responded (East)	No data provided	2
Physical Disability frontline staff	40	3
Frontline Children's Disability Staff	38	14
Early Support Frontline Staff (Children's Centres)	No data provided	No data provided
Staff in Children's Residential Homes	No data provided	0*
Older People front line staff	approx. 190	17**

*only 1 of the 3 homes responded to requests for data
**the 17 staff vaccinated obtained their vaccine whilst working in an acute clinical setting and not as part of the Council model

Responsibility for funding and administering the seasonal flu vaccine to staff (other than those in clinical risk groups) lies with employers and this has led to difficulty with vaccination of social care staff who are not directly employed by the county council. As there were no levers within contracts to require social care providers to offer flu vaccination to their front line staff, it was decided to take a different approach for staff employed by external, CCC commissioned, organisations. On this basis communication went to employing organisations to:

- Request that employers consider arrangements to offer flu vaccination to eligible staff
- Highlight the responsibility of the employer in protecting the health of staff and vulnerable clients
- Highlight the benefits of vaccination in improving organisational resilience
- Signpost employers to the resources available via the NHS Flu Fighters campaign site

There is no mechanism in place to assess whether this communication was successful by measuring uptake among these staff.

5.10 Shingles vaccination programme

This was a new programme, introduced in 2013, to protect elderly people who are at greatest risk of Shingles and its adverse consequences. Eventually everyone will receive the vaccination at age 70, but in the early years a catch up programme is in place to cover as many of those aged over 70 as possible. In 2014/15 the vaccine was routinely offered to those aged 70 and catch-up to 78 and 79 years on 1st September 2014 until 31st August 2015. Uptake is fair, but could improve considerably.

Table 13: Shingles vaccination uptake to May 2015

	Feb 2015 %		
	70 yrs	78 yrs	79 yrs
CCG	60.1	56.1	58.2
East Anglia	57.7	55.3	56.8

5.11 Pertussis vaccination in pregnancy

Following a national outbreak among babies of Pertussis (Whooping cough) which led to a number of infant deaths, a programme to vaccinate pregnant women between 28 and 38 weeks of pregnancy was initiated. There was evidence that immunity among women of child-bearing age had waned, and by vaccinating them, it would prevent them picking up whooping cough and passing it to their babies.

Following introduction of this programme, there was a 79% drop in cases in 2013 and a decision was made to continue with this programme of vaccination in pregnancy.

The table below give data on uptake, data is reported for the Cambridgeshire and Peterborough CCG area, showing fair levels of coverage. However data capture for this programme has not been robust up to now but NHSE have introduced an improved data capture system.

Table 14: Pertussis vaccination uptake by pregnant women

	April 2014 %	May 2014 %	June 2014 %	July 2014 %	August 2014 %	Sept 2014 %	Oct 2014 %	Nov 2014 %	Dec 2014 %	Jan 2015 %	Feb 2015 %	Mar 2015 %
CCG	59.6	53.0	53.1	49.0	48.1	51.3	52.0	50.8	59.6	53.1	54.1	51.6
East Anglia	60.6	60.5	57.2	55.8	55.5	58.3	60.3	60.6	65.7	61.6	60.9	58.1

6.0 SCREENING PROGRAMMES

6.1 Cancer screening programmes

There are three cancer screening programmes in the UK for Breast, Cervical and Bowel cancer and the data for these programmes was provided by NHS England

Uptake of the two established cancer screening programmes in women for breast and cervical cancer is low in Cambridgeshire and showing a worrying downward trend. A Task and finish Group has been established in May 2015, at the request of the Cambridgeshire HPSG, to look at detailed data and other evidence, to consult more widely and to make recommendations for action to improve uptake. It is intended that this group will report back to the HPSG in September 2015. The most recent cancer screening data is given below.

6.2 Breast Cancer screening

A number of measures are reported to evaluate the success of the screening programme and all are reported to the HPSG. Uptake data is usually reported annually and has not yet been reported for 2014/15, so the most recent annual data is given in Table 15 below. Other data for the breast screening programme are given in the figures below.

Table 15: Breast screening uptake in Cambridgeshire 2013/14

Age group	Uptake
50 – 64	72.1%
50 – 70	73.1%
All ages	71.7%

The map below (source Health and Social Care Information Centre, HSCIC) illustrates that uptake in Cambridgeshire is low compared with many comparable areas of the country, while the trend graph at Figure 3 illustrates the declining uptake rate in Cambridgeshire and Peterborough. .

Figure 2: Breast Screening Coverage by women age 53 – 70 by local authority ion England 2013/14 (HSCIC)

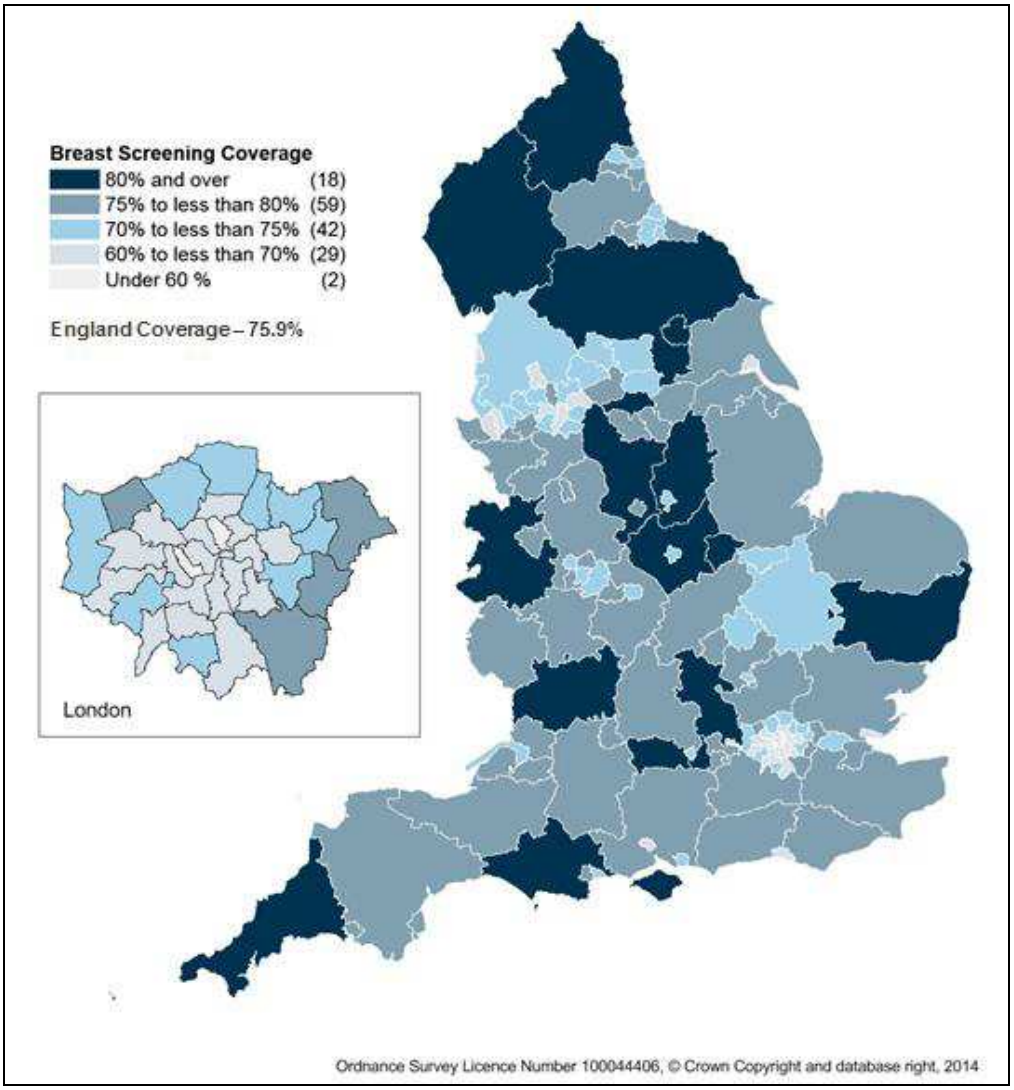
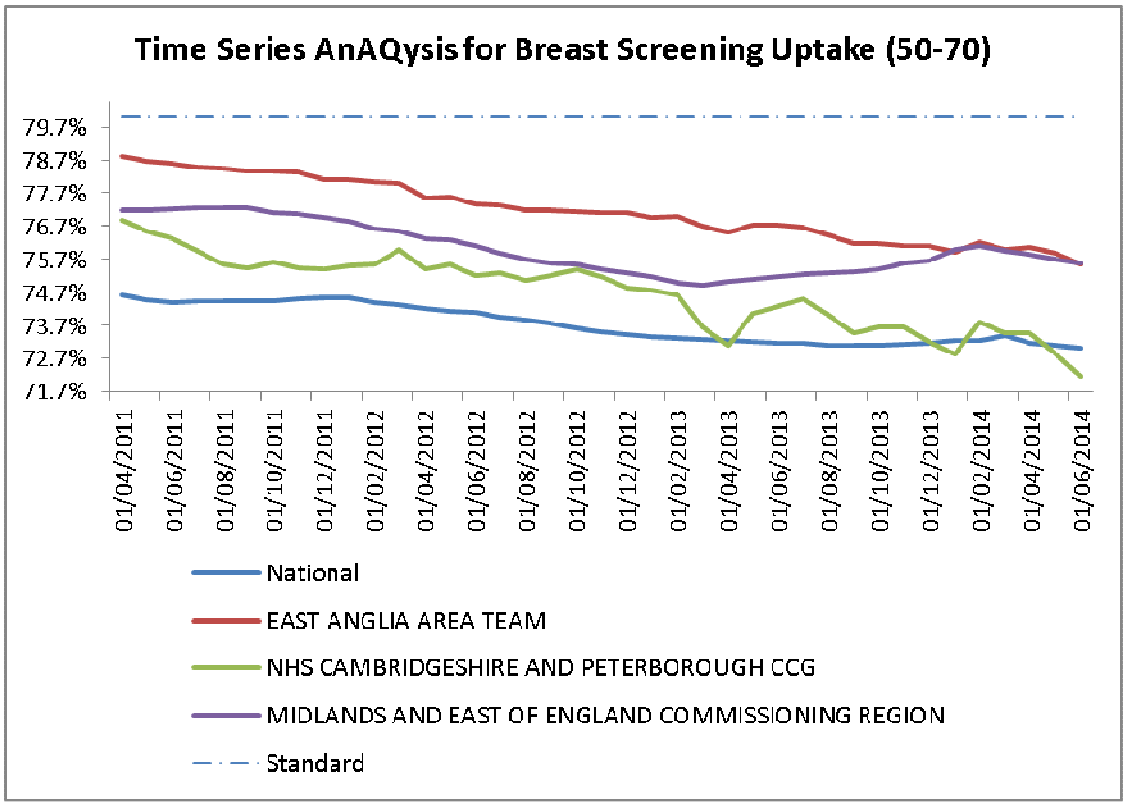


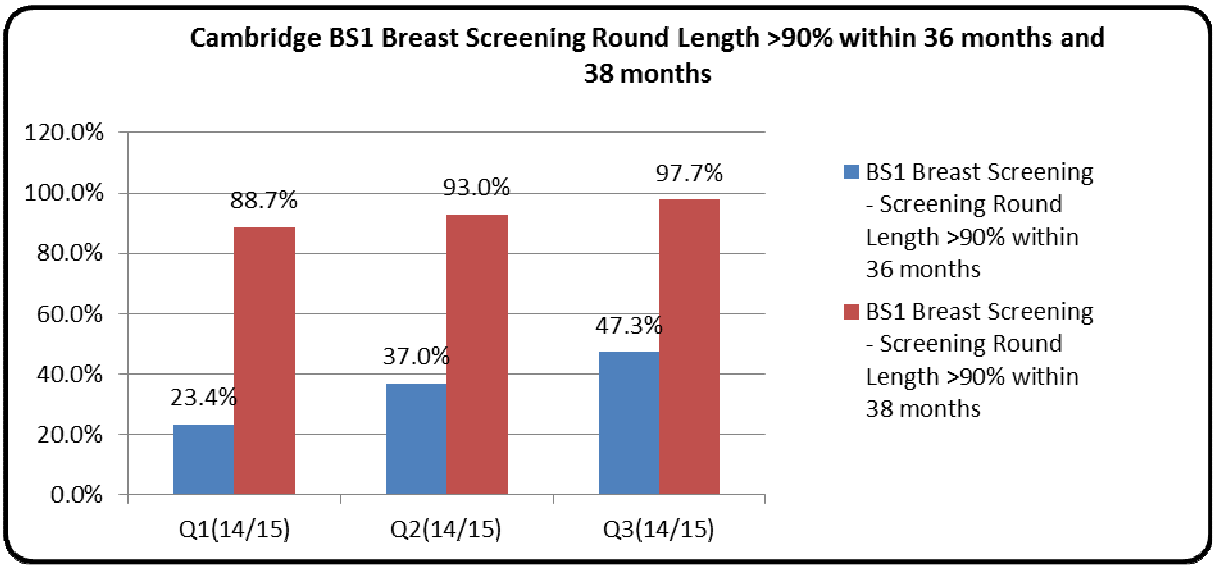
Figure 3: Cambridgeshire and Peterborough CCG Uptake trend for breast screening 2011 - 2014



Source: NHS England

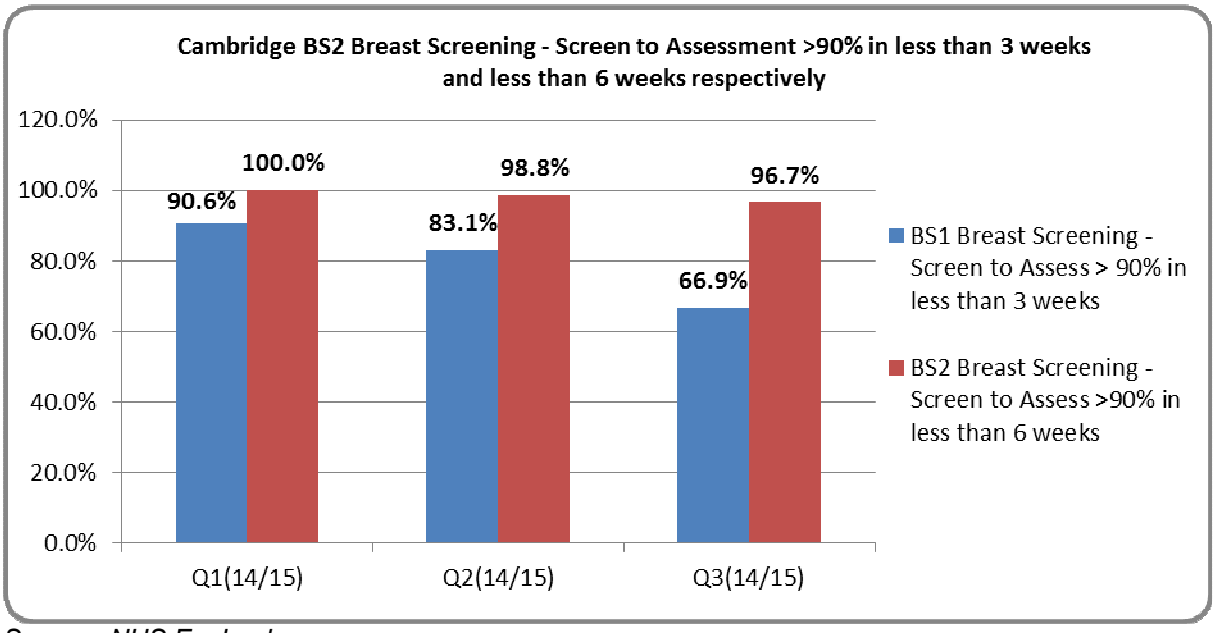
Other important measures are the proportion of women who are screened within a 36 or 38 month period, (this screening programme aims to screen eligible women ever three years and the 'round length' should be 36 months) and the time taken from screening to assessment if any abnormality is detected on the screening mammogram (standard is 90% within three weeks). The following two figures illustrate achievement in these two areas for Cambridgeshire women. While the majority of women are screened within 38 months of the last screen, less than half are being seen within 36 months and, while most women that need assessment are seen within 6 weeks, the time from screening test to assessment has deteriorated during 2014/15.

Figure 4: Proportion of eligible women screened within 35 and 38 months



Source: NHS England

Figure 5: Proportion of women requiring assessment who are seen within 3 weeks or 6 weeks of the screening test



Source: NHS England

NHS England report that Breast screening uptake has been on the decline for a while now especially in Cambridge city and Cambridge North. This is mainly owing to difficulty with securing accessible

venues and the shortage of trained radiographers. The screening service has worked collaboratively with the council and public health to identify suitably accessible sites to host the mobile screening van. The newly identified and agreed site is in the heart of Arbury and IT and communication technology support is being organised in readiness for a summer visit. It is expected that once fully functional, this additional capacity should help to address the problems of poor uptake in the Arbury/ north Cambridge region. Additionally, there are plans by CUFHT to put on additional clinics to further improve uptake and coverage.

6.3 Cervical Screening

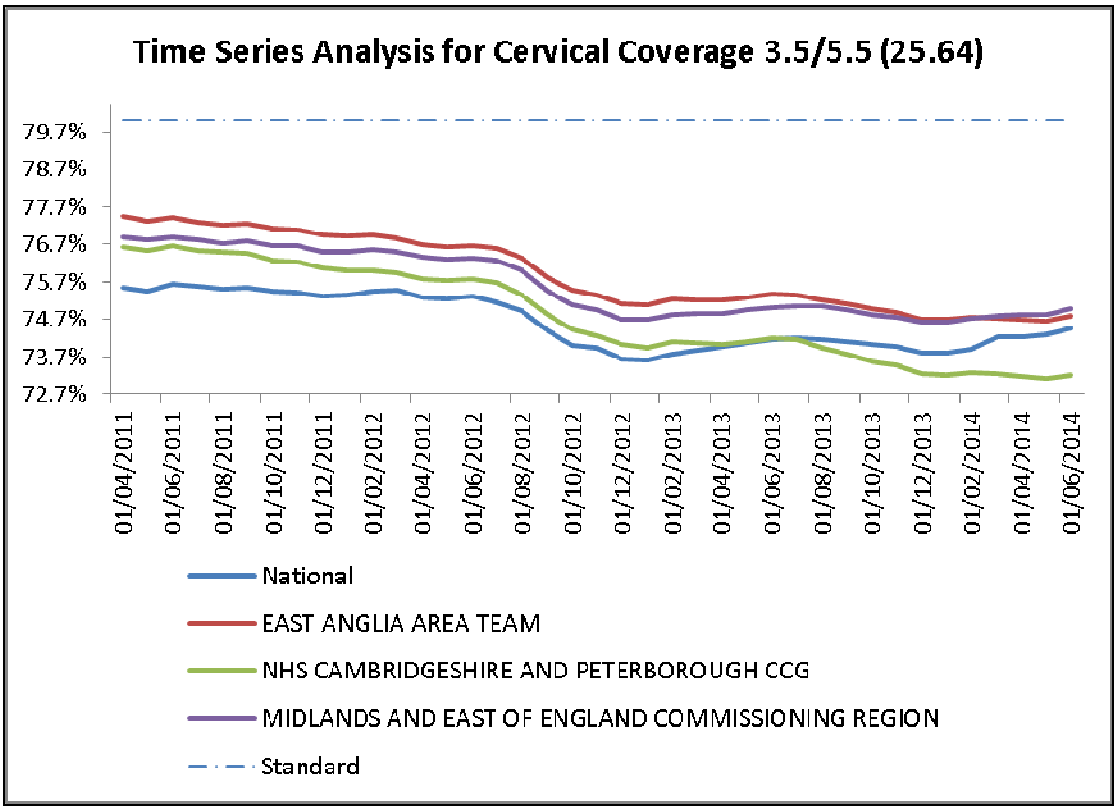
Cervical screening is offered to all women aged 25 to 50 years every three years and aged 50 to 64 yours every five years. Screening takes place in GP practices. The trend data show a steady decline for the Cambridgeshire and Peterborough CCG area. The target for coverage is 80% and these trend data show that there is a steady decline in coverage with Cambridgeshire and Peterborough CCG now below the national (England) level for the last 4 quarters. Coverage has fallen in all areas shown in Figure 6. (England (national), Midlands and East Commissioning region, East Anglia Area Team (Norfolk, Suffolk, Cambridgeshire and Peterborough) and Cambridgeshire and Peterborough Clinical Commissioning Group (CCG). Coverage in the younger cohort (25 – 49) is lower than in the 50 – 64 age group. In the last year however the 50 – 64 age group coverage has fallen below the target of 80% and is now below the national average having previously been higher.

Table 16: Latest Cervical screening data

Cervical Screening	Q1 April-June 2014	Q2 July-Sept 2014	Q3 Oct-Dec 2014	Q4 Jan-March 2015
Coverage standard - % with adequate test in 5 years	76.2%	Data awaited	Data awaited	Data awaited
standard 80% coverage for 25-49 yrs (3.5 yearly)	70.7%	Data awaited	Data awaited	Data awaited
standard 80% coverage for 50-64 yrs. (5 Yearly)	77.0%	Data awaited	Data awaited	Data awaited

standard 98% 14 day turnaround time from date of test to receipt of result letter	96.4%	Data awaited	Data awaited	Data awaited

Figure 6: Cambridgeshire and Peterborough CCG Cervical Screening Coverage Trend 25 – 64 years



6.4 Cancer screening Task and Finish Group

This group established by NHS England at the request of the HPSG, met for the first time in May 2015. At the first meeting detailed analysis of the data for breast and cervical screening was presented that helped to identify pockets of poor uptake. Further analysis will be undertaken and work with users and other stakeholders to identify issues that inhibit uptake of these effective screening tests in order to make recommendations for action to address these issues. The group will report in autumn 2015.

6.5 Bowel cancer screening

This national screening programme involves all those aged 60 and over receiving a testing kit by post in which they can return faecal samples for testing. The test looks for hidden (occult) blood which can

indicate some problem in the bowels that is causing bleeding. The presence of Faecal Occult Blood (FOB) is not diagnostic of cancer but gives an indication that further testing is needed. The further tests are by endoscopy (examination of the bowel with a specialised scope and camera apparatus). There are a number of screening hubs across the country each covering a large geographical area and the data provided is for the Eastern Bowel Screening Hub.

Table 17: Bowel Cancer data to December 2014

	Q1 April-June 2014	Q2 July-Sept 2014	Q3 Oct-Dec 2014	Q4 Jan-March 2015
Bowel Screening (standard 52% completion of FOBT kit)	59.5%	59.9%	65.7%	Data awaited
Assessment by specialist screening practitioner (SSP) (standard 100% seen by SSP in 2 weeks)	100%	100%	100%	Data awaited
SSP assessment to endoscopy time (standard 100% endoscopy within 2 weeks of seeing SSP)	100%	100%	Data awaited	Data awaited

6.6 Non-cancer screening programmes

There are two national screening programme for non-cancerous conditions, Retinal (eye) screening for people with diabetes, and screening for abdominal aortic aneurysm (AAA) for those aged 70 and over. As the data in Table 18 below indicates, the Diabetes Eye Screening programme is performing well. The AAA screening programme is delivering over 90% uptake but detailed data are not provided for this programme.

Table 18: Diabetic Eye Screening data 2014/15

Diabetic Eye Screening				
	Q1 April-June 2014	Q2 July-Sept 2014	Q3 Oct-Dec 2014	Q4 Jan-March 2015
standard 70% uptake (*% screened out of the total offered)*	74.6%	80.3%	79.6%	74.6%
standard 70% results received issued within 3 weeks of screening	98.3%	98.6%	99.2%	Data awaited
standard 80%	2wks: 61.6	2wks: 80%	2wks: 94%	Data awaited

treatment within 4 weeks and 60% within 2 weeks of significant positive screen	4wks: 100.0	4wks: 75%	4wks: 94%	

6.7 Antenatal and newborn screening

A large number of screening tests are undertaken during pregnancy to screen for certain diseases that may affect the health of the baby, in order that action can be taken during the pregnancy to minimise the impact on baby and mother. Details of uptake levels for a number of these tests are given below. In the early weeks after birth, a number of important screening tests are undertaken to identify conditions for which early intervention is very important and uptake data is given below. In addition to these tests, all babies should undergo a routine physical health check in the first few days. Data for this examination is not well reported and was not available for this report.

Table 19: Ante-natal screening coverage

	Q3 Sep-Dec 2013	Q4 Jan-Mar 2014	Q1 Apr-Jun 2014	Q2 Jul-Sep 2014	Q3 Sep-Dec 2014
HIV screening (standard is to achieve >90%)					
CUHFT	No data submitted				98.4
HHT	99.9	99.5	99.5	99.3	99.7
Infectious disease Hepatitis B (Standard >70-90% timely referral of hep B + women for specialist treatment)					
CUHFT	100	100	100	100	100
HHT	0	0	*50	100	100
Down's Screening (standard >97%)					
CUHFT	98	98	98.5	98.5	99.2
HHT	98.1	99	97.6	98.5	97.6
Sickle Cell and Thalassaemia screening (standard >95%)					
CUHFT	94.1	95	95.2	96.5	93.7
HHT	99.1	98.5	99.5	98.1	**No data

** *Transfer of pathology services caused temporary issue with extracting accurate data; resolution for Q4 expected*

Table 20: Newborn screening

	Q3 Sep-Dec 2013	Q4 Jan-Mar 2014	Q1 Apr-Jun 2014	Q2 Jul-Sep 2014	Q3 Sep-Dec 2014
Newborn Bloodspot test (standard 95-99%)					
CUHFT (CCS)	99.9	99.7	99.9	100	100
HHT					
Newborn Bloodspot – avoidable repeat tests (standard <2%)					
CUHFT (CCS)	2.2	3.9	4.4	2.2	3.1
HHT	No data	No data	No data	No data	No data
Newborn blood spot timeliness of result (Standard 95-98%)					
CUHFT (CCS)	99.7	100	100	100	99.9
Newborn hearing coverage (standard 100%)					
CUHFT	95.8	94.5	95.9	97.5	
HHT	99	99.5	99.3	99.6	
Newborn hearing timely referral (standard 100%)					
CUHFT	80	81.4	72.2	93	
HHT	100	100.0	100.0	33.3	

7.0 EMERGENCY PLANNING

In their role within local authorities the DPH is expected to:

- Provide leadership to the public health system for health Emergency Preparedness, Resilience and Response (EPRR)
- Ensure that plans are in place to protect health of their population and escalate concerns to the Local Health Resilience Partnership (LHRP)as appropriate
- Identify and agree a lead DPH within a Local Resilience Forum (LRF) area to co-Chair the LHRP (for Cambridgeshire and Peterborough LRF and LHRP, the lead DPH is the Cambridgeshire DPH)
- Provide initial leadership with PHE for the response to public health incidents and emergencies. The DPH will maintain oversight of population health and ensure effective communication with local communities

7.1 Local health Resilience Partnership

Emergency Planning, Resilience and Response (EPRR) for the health sector are primarily directed by two acts of Parliament – the Civil Contingencies Act 2004 (CCA) and the Health and Social care Act 2012. Under the CCA, all areas of the country have established Local

Resilience Forums (LRFs) which are geographically co-terminous with Police force areas. For Cambridgeshire the LRF is for Cambridgeshire and Peterborough (CP LRF). The purpose of the LRF is to ensure effective delivery of those duties under the CCA that need to be developed in a multi-agency environment. In particular the LRF process should deliver: the compilation of agreed risk profiles for the area, through a Community Risk Register and a systematic, planned and co-ordinated approach to address all aspects of:

- risk
- planning for emergencies
- planning for business continuity management
- publishing information about risk assessments and plans
- arrangements to warn and inform the public and
- other aspects of civil protection duty, including the promotion of business continuity management by local authorities; and support for the preparation by all or some of its members of multi-agency plans and other documents, including protocols and agreements and the co-ordination of multi-agency exercises and other training events.'

Following the re-organisation of health services under the 2012 Health and Social care Act, Local Health Resilience Partnerships (LHRPs) were established to provide strategic leadership for the health organisations in an LRF area and are expected to:

- Assess local health risks and priorities to ensure preparedness arrangements reflect current and emerging need

- Set an annual EPRR work plan using local and national risk assessments and planning assumptions and learning from previous incidents

- Facilitate production and authorisation of local sector-wide health plans to respond to emergencies and contribute to multi-agency emergency planning

- Provide a forum to raise and address issues relating to health EPRR

- Provide strategic leadership to planning of responses to incidents likely to involve wider health economies e.g. winter capacity issues

- Ensure that health is represented on the LRF and similar EPRR planning groups

- Delegate tasks to operational representatives of member organisations in line with agreed terms of reference.

The Cambridgeshire and Peterborough Local Health Resilience Partnership (CP LHRP) is co-chaired by the NHS England Area Team

Director and the Cambridgeshire DPH. Member agencies share responsibility for oversight of health emergency planning in this forum. Following re-organisation of the CP LRF early in 2015, the LHRP is now a formal sub-committee of the LRF.

The DPH is supported in this work by a consultant in public health with oversight of all health protection issues, and by the Health Emergency Planning and a Resilience Officer (HEPRO) based within Public Health. A working group, the Health and Social Care Emergency Planning Group (HSCEPG) acts as the support group for the LHRP, and its work is directed by the LHRP.

The HSCEPG has membership from the CCG, local acute, community and mental health provider services, social care services, Public Health England and NHS England. It has completed a recent assurance of EPRR in all health organisations,

It is for the CP Local Resilience Forum to decide whether LHRP plans should be tested through a multi-agency exercise as a main or contributory factor The DPH reports health protection emergency resilience issues to the LHRP on a regular basis. The Health Emergency Planning and Resilience Officer (HEPRO) provides a brief update report on the activities of the LHRP to the HPSG to ensure sharing of cross cutting health sector resilience issues.

7.2 LHRP activities in 2014/15

Members of the LHRP took part in a table top exercise, developed by Public Health England (PHE), to test planning and preparedness should there be an imported case of Ebola. Around 30 representatives from organisations in Cambridgeshire took part on 27th October 2014, including representatives from CCC Public Health and Emergency Management Teams.

The HSCEPG has also organised two ‘strategic leadership in crisis’ workshops for directors in the health system.

Following the gap analysis carried out by the HEPRO the following three priorities have been agreed at the LHRP for 2015-2016:

- Pandemic Flu: To work with partners to embed the process to deliver an operational response.
- Fuel Disruption Planning: Ensure Business Continuity arrangements with the health sector adhere to the new National

Guidance and that the plan correlates to the LRF Fuel Disruption Plan.

- Mass Casualties Planning: To ensure consistency in planning across the East and highlight any specific arrangements for Cambridgeshire.

The above work plan reflects the Department of Health priorities and the risks highlighted by the National Risk Register.

8.0 HEALTHCARE ASSOCIATED INFECTION (HCAI) AND ANTIMICROBIAL RESISTANCE (AMR)

8.1 MRSA bacteraemia

National mandatory reporting, in place since 2009, continues for Multi-Resistant Staphylococcus Aureus (MRSA) bacteraemia and Clostridium difficile (C Diff), to tackle the previous very high numbers of cases being reported that contributed to patient mortality.

Zero tolerance of preventable MRSA bacteraemia remains the national and local objective. Our local hospitals in Cambridgeshire have reported one case, which was removed from the hospital data, following an arbitration process, as no lapses in care had been identified.

The arbitration process acknowledges that a number of providers, including all community services, may be involved in the care of a patient so that a case may not be attributable to any one care provider or that the infection occurred despite no lapse in care and had to be considered as not preventable.

8.2 Clostridium difficile

Following some years of significant reduction, the number of C Diff cases nationally continues to fall but at a slower rate than when mandatory reporting initially commenced in 2009. Every effort is made to ensure continued reduction and to broaden our knowledge of this disease and the best means to reduce the associated risks. We have a clear understanding of what best practice looks like but complex patient pathways across all our health systems lead to many professional staff groups and specialties being involved in the care of individual patients. Each professional must share ownership of this risk. Co-coordinating this pathway and joining up communication is complex and challenging, but important especially between primary and acute care.

Every case of C Diff, whether community or hospital onset, has a root cause analysis completed and scrutiny meetings are held. Whilst improvements have been made in antibiotic prescribing, many challenges remain to prevent onward transmission to other patients.

This year a national process to remove cases from the local objective where no lapses in care have been identified was introduced. Using strict criteria and standards the arbitration decision is made at scrutiny meetings which have high level representation from Directors of Nursing; microbiologists, front line clinical staff and infection control teams from provider services and the CCG. This process enables providers to review their practice and have an effective learning opportunity when cases occur. Providers are supported to achieve high standards of care providing a more positive patient experience. The aim is that providers do not become complacent with their achievements to date, ensuring that best practice continues to be embedded amongst staff.

8.3 Antimicrobial Resistance

Antimicrobial resistance has been identified as a national and international risk to human health by the Chief Medical Officer, World Health Organisation and the Government as a whole. Antibiotics are widely used with many patients in the UK failing to complete the prescribed course or demanding antibiotics for viral or self- limiting conditions. These factors contribute to the development of antimicrobial resistance. In addition, no new class of antibiotics has been developed by the pharmaceutical industry in recent years. Each year on European Antibiotic Awareness day in November these problems are highlighted in the media, social media and posters.

The prescribing of antibiotics is monitored by the Medicines Management Team in the CCG for primary care and by hospital pharmacists for in-patients. Because antibiotic use is implicated in cases of C Diff, antibiotic prescribing is discussed at each scrutiny panel for C Diff, following completion of the root cause analysis. Concerns identified are either discussed with the GP or with the Medicines Management Team (MMT). High prescribing levels of two particular groups of antibiotics have been identified and a strategy is being developed to address the associated risks, one of which is an increased risk of C Diff infection. While general use of these groups of antibiotics should be limited, they must continue to be available and effective to treat infections caused by certain bacteria, which are

sensitive to them. The outcome of this strategy will be known at the end of quarter one of 2015/16.

This is an area that will continue to be tackled by the CCG in collaboration with other local prescribers in acute, community and primary care

9.0 SEXUAL HEALTH

On October 1 2014 the new Cambridgeshire Integrated Sexual Health Service was launched. This followed a robust competitive procurement process with the contract being awarded to Cambridgeshire Community Services (CCS).

The aim of the new Service is to integrate the provision of sexual health and contraception services, increase accessibility, especially for hard to reach, high risk populations, and to address the inequity of service provision and the health inequalities between the north and the south of the county.

By entering into a Section75 agreement with NHSE Cambridgeshire County Council has been able to include HIV services provided by CCS in the new contract, ensuring that there was continuity of care and better accessibility for some of the more vulnerable HIV patients living in areas outside of Cambridge City.

In addition CCS sub-contracted with the Terence Higgins Trust (THT) for it to provide outreach chlamydia screening services in Fenland and with harder to reach high risk groups.
Since the start of the contract:

- A new GUM clinic has opened in Wisbech in a newly renovated clinic to provide access to local patients who would otherwise travel to Kings Lynn or Peterborough.
- THT has started its outreach servicing the north of the county.
- There are regular Tier 2 services in March and a school based Tier 1 service in Chatteris.

The implementation of the new Service was generally uneventful. However it was acutely affected by the e Hospital issues at CUHFT. The implementation of the new electronic patient information system at the Hospital experienced considerable difficulties that severely affected the new Sexual Health Services. Staff were diverted from their regular duties to focus upon securing late or missing laboratory results and following up patients. This situation has now been resolved and CCS has contracted with another laboratory service provider.

A key element of the Chlamydia Screening programme, which is part of the Integrated Service, is the online service. A new provider was commissioned from October 2014. However there was a delay of

several months before NHS Choices and the National Chlamydia Screening Service changed the sign posting on their websites to the new provider. This impacted on the number of “online” screens, but the situation has now been resolved.

10.0 OTHER AREAS

10.1 New Vaccination Programmes

Over a number of years new vaccines have been developed and introduced into the routine vaccination programmes that can prevent meningitis, a serious life-threatening infection that mainly affects children and young adults. These include Haemophilus Influenza (Hib) and Meningococcus C vaccines which are now well established and very effective. However there are a number of strains of Meningococcus bacteria which also cause serious illness. This year Meningococcus B vaccine is being introduced as part of the primary vaccination for infants. In addition, there are plans to introduce Meningococcus ACWY vaccine following a recent increase in Meningococcus W infections. This will be delivered in schools to adolescents by school immunisation providers.

10.2 Collaborative Tuberculosis strategy

A Collaborative TB Strategy for England was published in January 2015 following consultation during 2014 to which Cambridgeshire County Council responded. It was launched jointly by PHE and NHS England who are committed to working in partnership with the NHS, clinical commissioning groups (CCGs) and local authorities. Local authorities, whose leadership through their directors of public health and health and wellbeing boards is critically important in bringing together all the local agencies, including third sector partners in order for this strategy to succeed tackling TB.

TB has major health and social impacts for those affected. In addition, it contributes to increasing health inequalities in already deprived populations. Each infectious case represents a risk of onward transmission and the failure to protect communities from TB transmission should be regarded as a failure of public health systems.

The strategy describes the strategy ambitions to make significant advances in TB control. To achieve this improvements need to be made in the following key areas:

1. Improve access to services and ensure early diagnosis
2. Provide universal access to high quality diagnostics
3. Improve treatment and care services
4. Ensure comprehensive contact tracing
5. Improve BCG vaccination uptake
6. Reduce drug-resistant TB
7. Tackle TB in under-served populations
8. Systematically implement new entrant latent TB screening
9. Strengthen surveillance and monitoring
10. Ensure an appropriate workforce to deliver TB control

At a recent launch event in East Anglia, attendees worked in 5 workshop groups to consider each of these areas in some detail and how the strategy could be taken forward locally. While there were many recommendations made, workshop discussions generated 4 common recommendations to implement the 10 action areas, which are:

1. Establish intelligent, clear and consistent commissioning of local TB services
2. Improve links between key social and medical services
3. Raise the profile of TB amongst professionals, organisations and the general public
4. Empower and improve support mechanisms for healthcare workers

The work will be taken forward by the local TB network groups which will report to a new East of England TB Control Board.

10.3 HPSG priorities for 2015/16

At its meeting in January 2015, the HPSG members agreed a set of shared priorities to address during the coming year. In addition to other standing items such as immunisation and screening updates, these priorities will be a standing agenda item for all meetings of the HPSG:

- Public communication to support uptake of immunisation and screening (e.g. cervical screening was low in Cambridge City) and some other issues such as use of anti-microbial drugs. – much of this work will be addressed by the two task and finish groups that are set up by NHS England whose work will be routinely reported to the HPSG
- TB to include vulnerable people – much of this will be addressed by the TB networks as part of the implementation of the Collaborative TB Strategy and will be reported to the HPSG
- Pandemic flu planning including planning for excess deaths – this is a shared priority with the LHRP and HSCEPG as well as being an LRF priority

10.4 **Blood borne viruses and drug and alcohol services**

Following a recent report to the HPSG it was recognised that further work should be undertaken to look at the low uptake of testing for blood borne viruses (Hepatitis B and C and HIV) with resulting low uptake of prevention and treatment services such as Hepatitis B vaccination. A Task and Finish group will meet for the first time in July 2015 to study the data and the evidence and develop a plan to improve uptake.

11.0 Summary

This report has highlighted a large number of issues in relation to health protection in Cambridgeshire and demonstrates the benefits of the many prevention services that are available, as well as raising

concerns about the low uptake of some of these services. A considerable amount of activity that is in hand or is planned to address issues raised is outlined in the report.

Appendix 1

GLOSSARY

AAA	Abdominal Aortic Aneurysm
AT	Area Team (part of NHS England)
BCG	Bacillus Camille Guerin (vaccine to protect against TB)
CCC	Cambridgeshire County Council
CCA	Civil Contingencies Act 2004
CCDC	Consultant in Communicable Disease Control
CCG(s)	Clinical Commissioning Group(s)
CCS	Cambridgeshire Community Services
CPFT	Cambridgeshire and Peterborough Foundation Trust
CPLHRP	Cambridgeshire and Peterborough Local Health Resilience Partnership
CUHFT	Cambridge University Hospital Foundation Trust
DH	Department of Health
DPH	Director of Public Health
DsPH	Directors of Public Health
EH	Environmental Health
EHO	Environmental Health Officer
EPRR	Emergency Preparedness, Resilience and Response
GP	General Practitioner
GUM	Genito-urinary medicine (sexual health)
HIV	Human Immunodeficiency Virus
HHT	Hinchingbrooke Hospital Trust
HPN	Health Protection Nurse
HPSG	Health Protection Steering Group
HPT	Health Protection Team (part of Public Health England)
HPV	Human Papilloma Virus
HSCEPG	Health & Social Care Emergency Planning Group
HSE	Health and Safety Executive
HWB	Health and Well-being Board
IMT	Incident Management Team
JHWS	Joint Health and Well-being Strategy
JSNA	Joint Strategic Needs Assessment
LA	Local Authority
LGA	Local Government Association
LHRP	Local Health Resilience Partnership
LRF	Local Resilience Forum
MMR	Measles, Mumps and Rubella (vaccine)
MOU	Memorandum of Understanding
NHS	National Health Service
NHSE	NHS England
NHS	National Health Service
NHSE	NHS England
(O)IMT	(Outbreak) Incident Management Team
OOH	Out of Hours

PSHFT	Peterborough & Stamford Hospitals Foundation Trust
PCT	Primary Care Trust
PHE	Public Health England
Q 1,2,3,4	Reporting quarters for each year (Q1 = April – June, Q2 = July – Sept. Q3 = Oct – Dec, Q4 = Jan – March)
TB	Tuberculosis

Appendix 2

Childhood immunisation programme schedule

Age	Vaccine	Protecting against
2 months	5 in 1 – Dta/IPV/Hib	Diphtheria, Tetanus, Pertussis (Whooping cough), Polio, Haemophilus Influenza type b (bacteria that causes severe pneumonia and meningitis in children)
	Pneumococcal (PCV)	This bacterium causes pneumonia, blood infection and meningitis
	Rotavirus	Common cause of serious diarrhoea and vomiting in children
3 months	5 in 1 – Dta/IPV/Hib – 2nd dose	See above
	Men C	Meningococcus C - causes Meningitis and blood infection (septicaemia)
	Rotavirus – 2nd dose	See above
4 months	5 in 1 – Dta/IPV/Hib – 3rd dose	See above
	Pneumococcal (PCV) – 2nd dose	See above
12 – 13 months	Hib/Men C	Haemophilus Influenza b and Meningococcus C
	MMR	Measles, Mumps and Rubella (German Measles)
	Pneumococcal (PCV) – 3rd dose	See above
2, 3 and 4 years	Children's flu vaccine	Seasonal flu
3 years 4 months and before starting school	MMR – 2nd dose	See above
	4 in 1 (DTaP/IPV)	Diphtheria, Tetanus, Pertussis (Whooping cough) and Polio
School years 1 and 2 (age 5 – 6)	Children's flu vaccine	Seasonal flu
12 – 13 years (girls only)	HPV	Human Papilloma Virus – 99% cases of cervical cancer linked with HPV infection
13 – 18 years	3 in 1 (Td/IPV)	Diphtheria, Tetanus and Polio
13 - 15	Men C booster	See above
18 – 25	Men C for students	See above