Public Health England

Protecting and improving the nation's health

Antenatal infection screening in the South East

2015 data

Field Epidemiology Service South East and London

March 2017

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Executive summary

Antenatal screening for infectious disease is successfully established in the South East with almost 107,000 women screened in 2015. Completeness of the data is excellent, with 100% of key fields completed for 2015. Uptake of antenatal screening is high in the South East; 99% of women attending antenatal clinics were screened for infections, which is more than the proportion seen nationally. All maternity units reported data and all but one maternity unit screened more than 95% of women attending antenatal clinics.

The positivity rates (the percentage of those tested who are positive) for hepatitis B (0.3%), HIV (0.1%) and syphilis (0.1%) were similar to the rates seen in recent years and all lower in the South East than in England. Of all positive antenatal screening tests in England, 9% of hepatitis B, 8% of HIV, and 6% of syphilis positive tests were in women in the South East, while 15% of all tests were carried out in the South East.

Out of the 279 women who were identified as positive for hepatitis B in the South East in 2015, just over a quarter were newly diagnosed (n=75, 27%). The burden of infection varied considerably across the South East with the positivity rate varying sixfold from 0.1% to 0.6% across South East maternity units.

Of the 105 women identified as positive for HIV in the South East in 2015, 18% were newly diagnosed (n=19). The positivity rate for HIV varied from 0% to 0.3% across South East maternity units. The proportion of women with newly diagnosed hepatitis B or HIV has reduced in the South East from 2011/12. In 2015, 61 women had a positive test for syphilis (further tests are required to indicate whether they have a current infection) through antenatal screening in the South East. The positivity rate for syphilis varied from 0% to 0.2% across South East maternity units.

The negativity rate for rubella antibodies in the South East (11.7%) in 2015 was higher than observed in 2011 (5.8%) and higher than that in England in 2015 (8.3%). In 2015, 13,657 women in the South East were identified as not having demonstrable antibodies to rubella through antenatal screening. The negativity rate in 2015 varied from 3% to 23% in South East maternity units and was over 15% in women screened at East Sussex, East Kent, Portsmouth and Southampton University.

In conclusion, the antenatal screening programme in the South East has high uptake and excellent reporting. The burden of infection in the South East was lower than seen for England as a whole. Although rubella susceptibility was higher, national screening for rubella antibodies has since ended. The information gathered through screening allows maternity units to assess and improve their services and to ensure that patient pathways, control measures and interventions are robust and timely, allowing mothers and babies to get the best care.

Implications

Maternity units screening less than 95% of women antenatally should review screening processes to identify how uptake can be improved. Maternity services should ensure that patient pathways for further diagnostic tests and interventions are robust so that the expected benefits of screening are realised to their full potential.

Commissioners should review patient pathways. These include considering how many babies of mothers identified as hepatitis B positive are subsequently reported by child health teams as having completed vaccination.

As a public health problem, rubella susceptibility is most effectively addressed prior to pregnancy through the MMR immunisation programme. Antenatal screening for rubella susceptibility ceased in April 2016. For those who grow up in this country, the mainstay of prevention of congenital rubella syndrome is MMR (measles, mumps and rubella) vaccination, which is part of the routine UK childhood schedule.

The approach of testing pregnant women for rubella antibodies was implemented in the 1970s, prior to the roll out of universal MMR in 1988. In view of the changing epidemiology of rubella and the good cover achieved in the national childhood immunisation programme, it is no longer the best approach to preventing congenital rubella syndrome. Rather, the focus is on maintaining the high uptake of MMR vaccine in the childhood programme, and using healthcare contacts with women of childbearing age to assess MMR status and immunise them before pregnancy.

It remains important that commissioners and providers of immunisation maintain high MMR coverage. This may include considering MMR status during health care contacts for adolescents, with an offer of MMR at the time of giving the adolescent ‘school-leaving’ booster (TdIPV). This will help to ensure that adolescents living in the UK are immune to rubella, including any who have missed doses earlier in childhood or migrated to the UK after the routine MMR doses are given. PHE advises that opportunities are taken to check the MMR status for women who are planning a pregnancy at appropriate opportunities. For example, when they register with a new GP or attend a family planning clinic.

Introduction

All women in England receiving antenatal care should be offered screening for hepatitis B, HIV and syphilis infection (rubella susceptibility ceased in April 2016) as part of the NHS Infectious Diseases in Pregnancy Screening (IDPS) Programme[1].

Screening aims to ensure that women with hepatitis B, HIV and syphilis are identified so that strategies can be put in place to prevent mother-to-child transmission of these conditions and to benefit the woman's own health. Prior to April 2016, women identified as susceptible to rubella were offered postnatal measles, mumps and rubella (MMR) vaccination to protect future pregnancies. Following a review this ceased in April 2016. Please see Appendix 1 for the detailed rationale and Appendix 2 for standards for the programme.

This annual report aims to provide an overview of the antenatal screening data which has been collated from maternity units within the PHE South East area, which for the purposes of this report includes Bournemouth. The report provides a summary of data by maternity unit.

Data sources

National monitoring of antenatal screening for infectious diseases is coordinated by the National Antenatal Infections Screening Monitoring (NAISM) programme, Public Health England[2]. In 2004, the NAISM programme began monitoring the uptake and test results of antenatal screening for hepatitis B, HIV, syphilis and rubella susceptibility in England.

Information is requested at maternity unit or trust level on the number of pregnant women attending for antenatal care, the number previously diagnosed with hepatitis B and HIV, the number screened for each of the four infections, and the results of the screening tests. Rubella susceptibility testing ceased in April 2016. Therefore, following on from 1 April 2016 this information is no longer required.

Please note that the data reported here may vary from data reported nationally due to a variety of reasons, including different cut offs for data inclusion and different data cleaning methods.

In this report, data for uptake in previous years may vary to previously published reports due to a change of methodology in calculating uptake.

More information on data sources, including how figures are calculated and limitations can be found in Appendix 3.

Reporting completeness

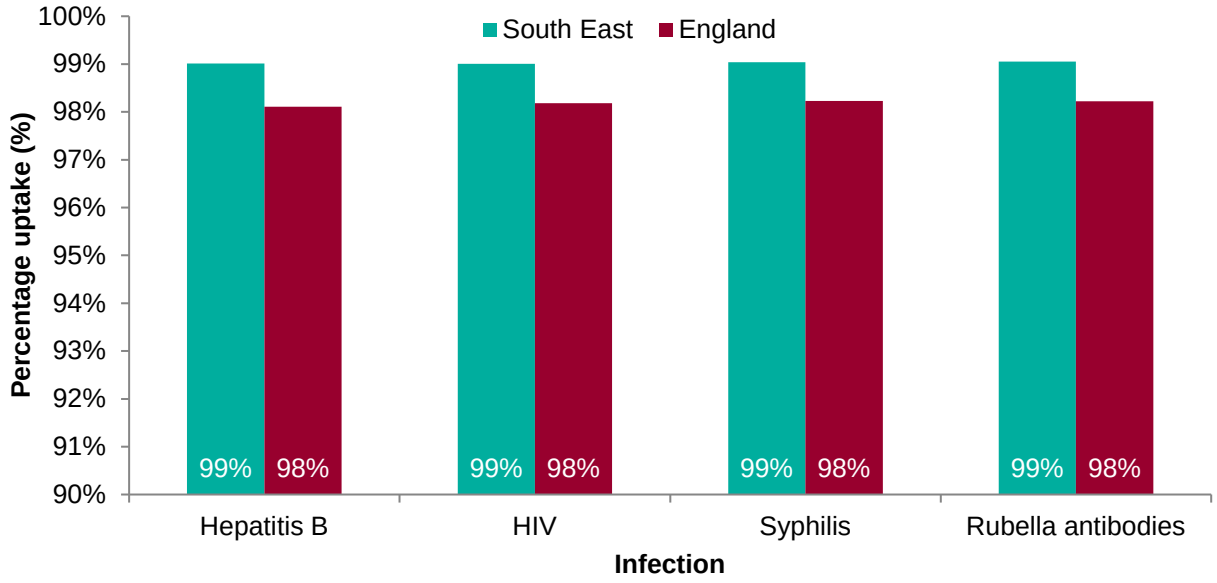
Twenty maternity units reported for all quarters in 2015. The completeness of data fields in NAISM returned forms from reporting South East antenatal clinics has improved over the past five years, with a completeness level of 100% achieved for all key variables in 2015[2].

Reported screening uptake

Antenatal screening uptake was high at approximately 99% for all infections in the South East in 2015 and higher than the uptake observed in England (Figure 1)[2, 3]. Overall, almost 107,000 women were screened for antenatal infections in the South East.

Figure 1: Antenatal screening uptake, the South East and England, 2015[2]

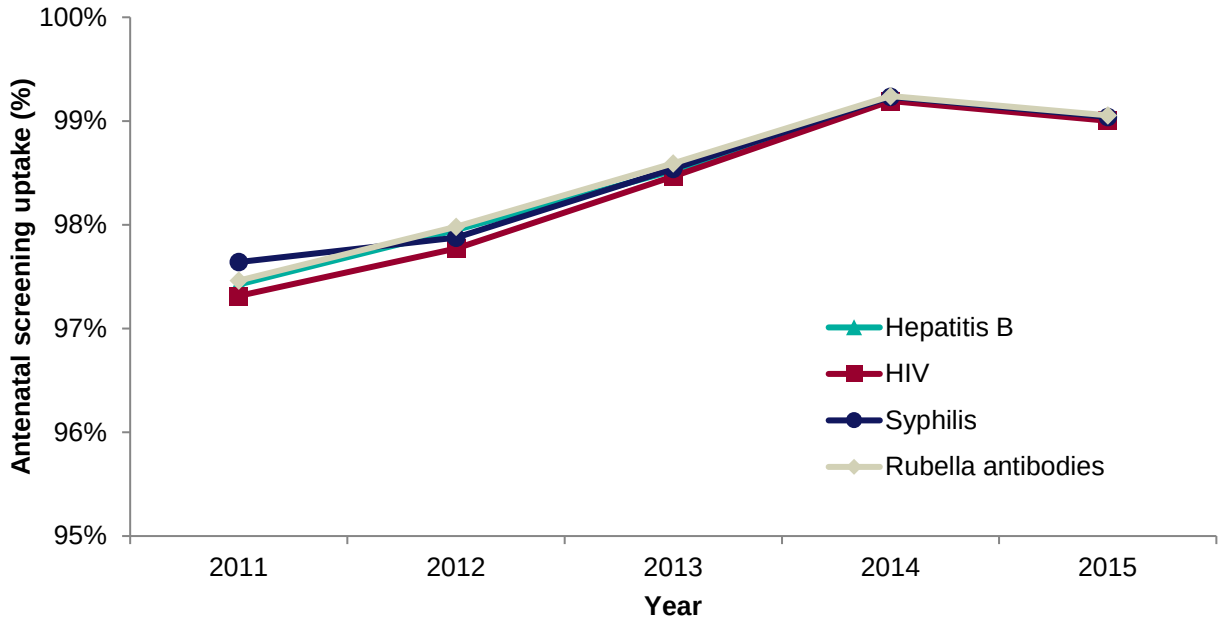
(please note scale starts at 90%)



The uptake of antenatal screening for infections in the South East has remained between 97% and 99% over the past five years (Figure 2)[2].

Figure 2: Antenatal screening uptake, the South East, 2011 to 2015[2]

(please note scale starts at 95%). (Data for uptake in previous years may vary to previously published reports due to a change of methodology in calculating uptake).



Of those units that reported data, 20 maternity units reported screening above the benchmark of 90%, 19 reported an uptake of over 95% for screening each of hepatitis B, HIV, syphilis and rubella antibodies (Figures 3-6)[2].

Figure 3: Hepatitis B screening uptake by maternity unit, the South East 2015[2]

(please note scale starts at 90%)

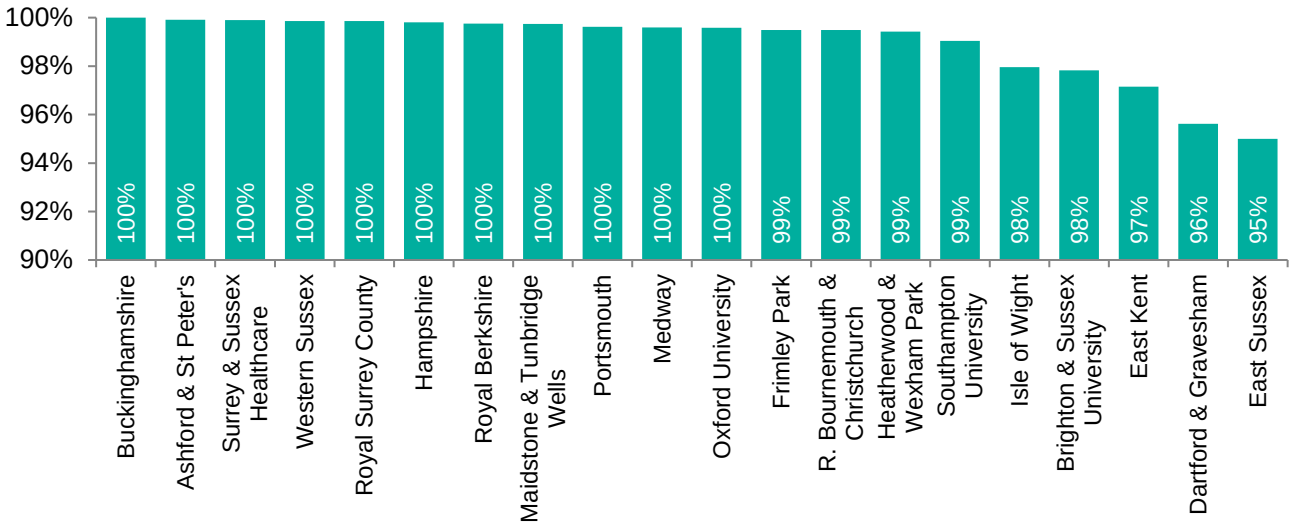


Figure 4: HIV screening uptake by maternity unit, the South East 2015[2]

(please note scale starts at 90%)

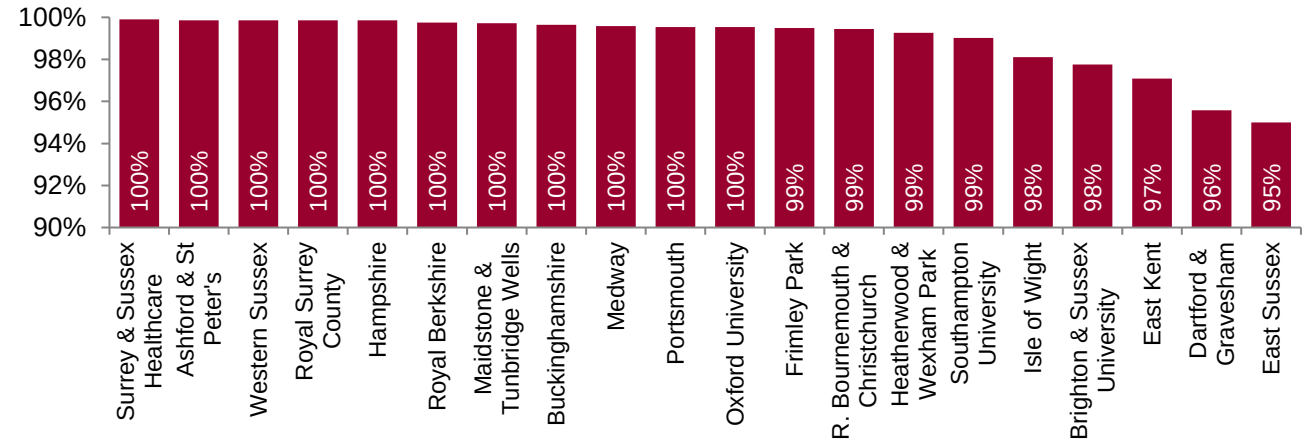


Figure 5: Syphilis screening uptake by maternity unit, the South East 2015[2]

(please note scale starts at 90%)

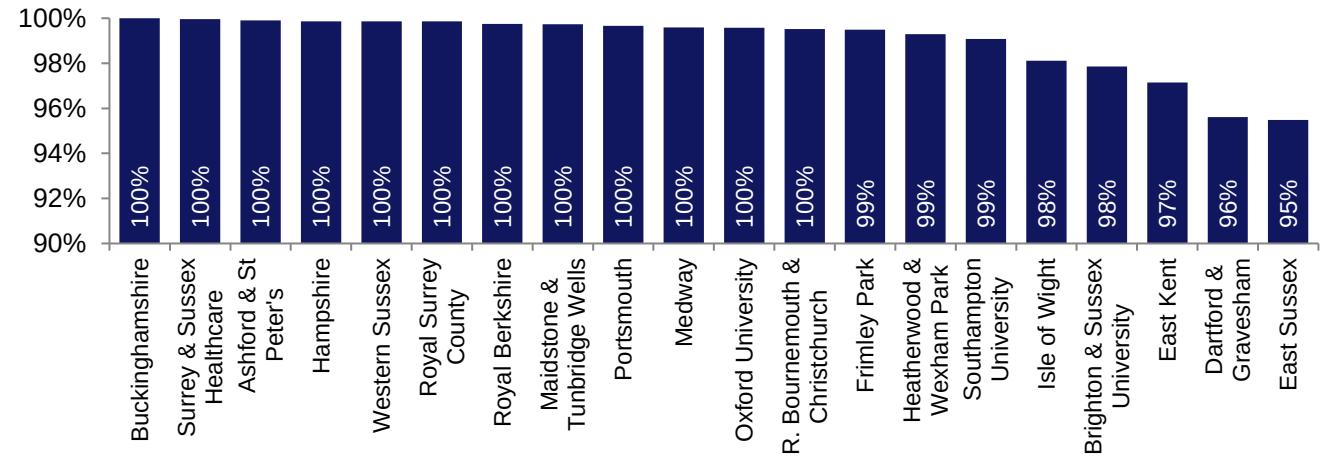
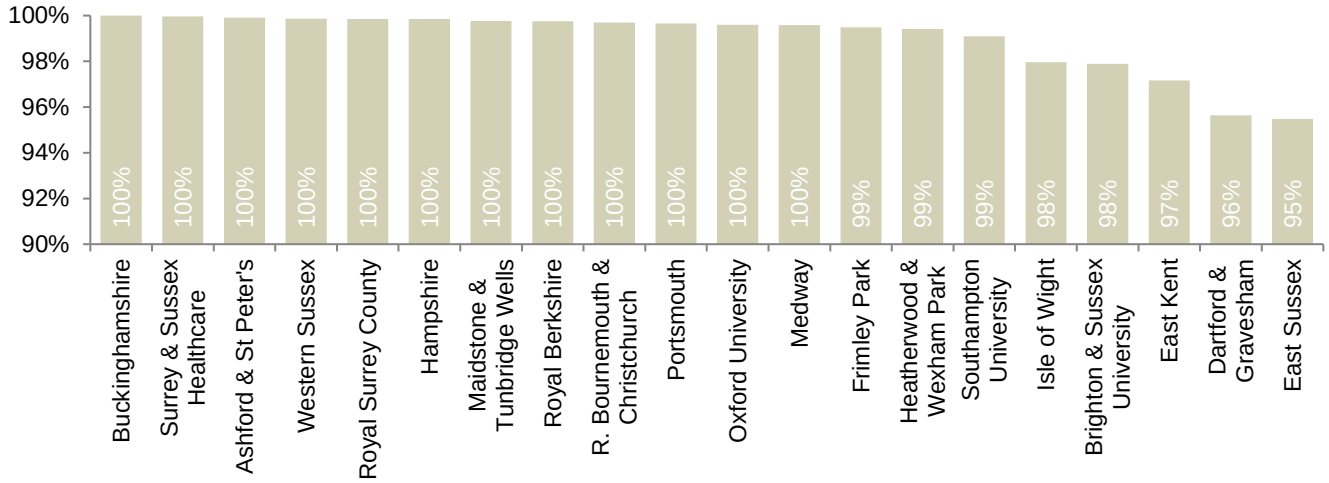


Figure 6: Rubella antibody screening uptake by maternity unit, the South East 2015[2]

(please note scale starts at 90%)



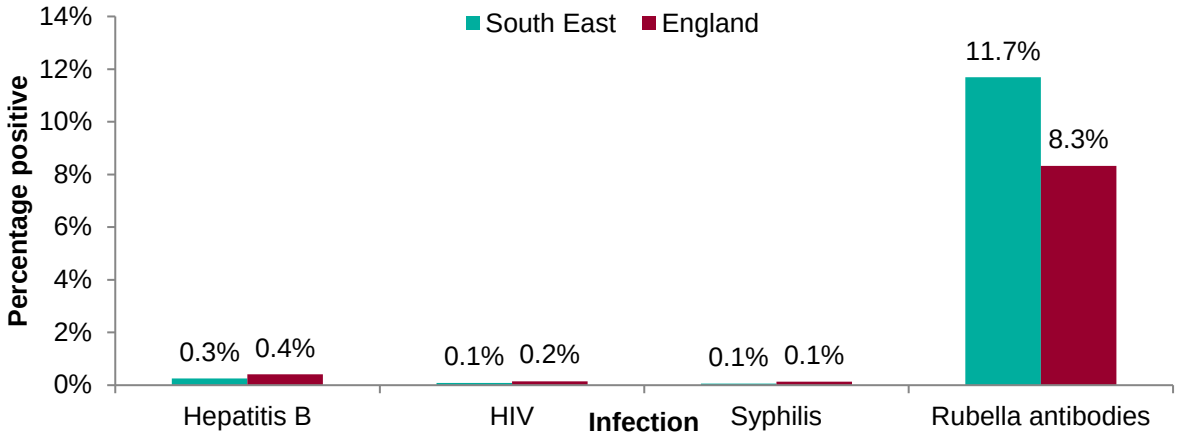
Positivity for hepatitis B, HIV, and syphilis, and negativity for rubella antibodies

The positivity rate (percentage of those tested who test positive, regardless of whether they have been tested before) for individual screening tests in the South East and negativity rate for rubella antibodies are reported below (Figure 7)[2]:

- 2.6 per 1,000 were positive for hepatitis B (0.3%, n=276)
- 0.9 per 1,000 were positive for HIV (0.1%, n=90)
- 0.6 per 1,000 tested positive for syphilis (0.1%, n=61)
- 116.9 per 1,000 screened negative for antibodies to rubella (11.7 %, n=13,657)

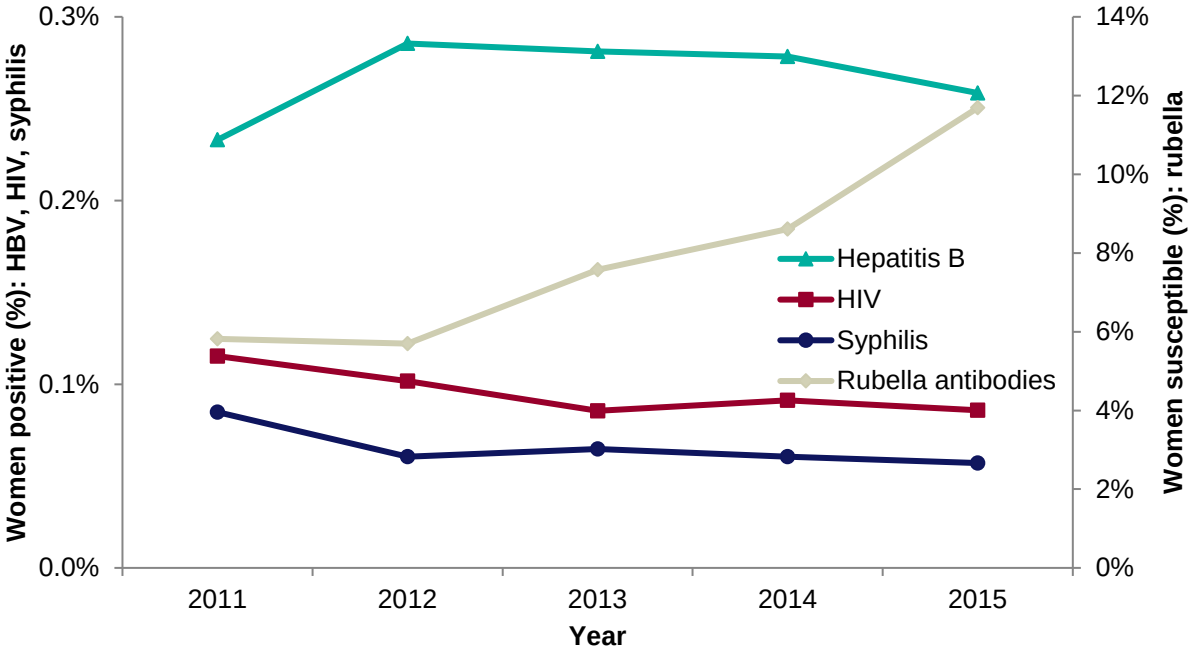
Compared to England, the positivity rate for hepatitis B, HIV and syphilis was lower in the South East[2, 3]. A higher proportion, however, tested negative for rubella antibodies in the South East than in England (Figure 7). Of all positive antenatal screening tests in England, 9% of positive hepatitis B tests, 8% of positive HIV tests and 6% of positive syphilis tests were identified from South East maternity units[2]. In comparison, approximately 15% of all antenatal tests were conducted in South East maternity units.

Figure 7: Percentage of women with positive tests for hepatitis B, HIV, syphilis, and susceptible to rubella of all women tested in maternity units in the South East and England, 2015[2]



The proportion testing positive for HIV reduced slightly from 0.12% in 2011 to 0.09% in 2013, and has since remained stable. The proportion testing positive for syphilis also reduced slightly from 0.08% to 0.06% in 2012, and has then stayed constant. The proportion testing positive for hepatitis B has remained between 0.23 to 0.29% since 2011. The percentage of antenatal women who screened negative for rubella antibodies, however, increased from 5.8% in 2011 to 11.7% in 2015 (Figure 8)[2].

Figure 8: Percentage of women with positive tests for hepatitis B (HBV), HIV, syphilis, and negative for rubella antibodies of all women tested in maternity units in the South East, 2011 to 2015



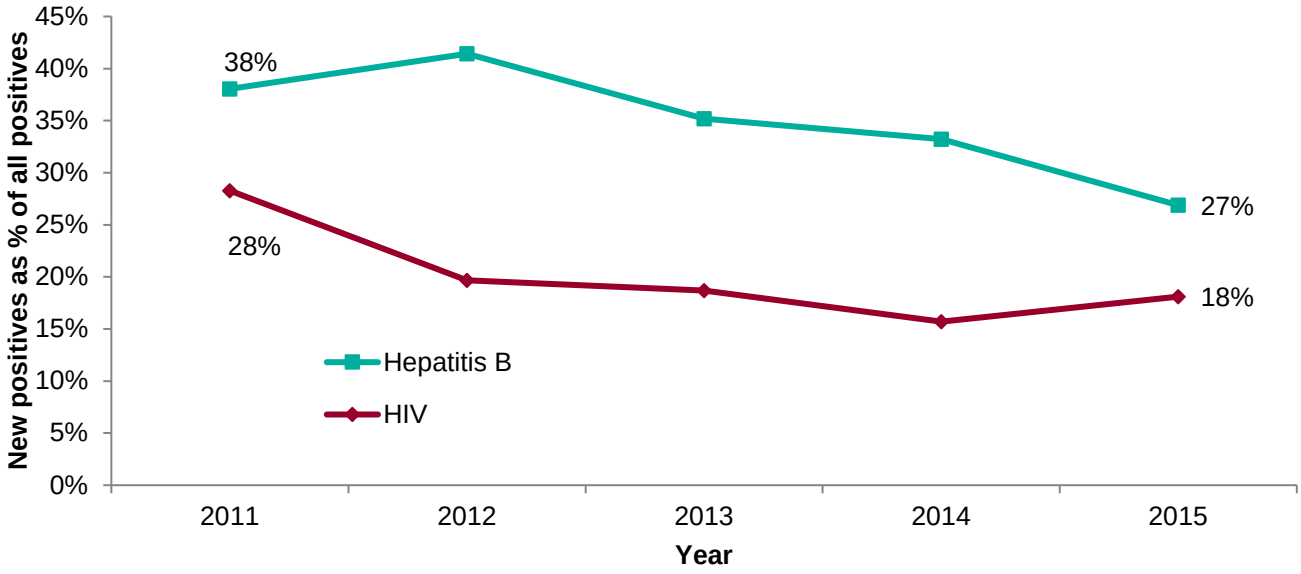
Newly diagnosed hepatitis B and HIV positive women

Most women reported as having hepatitis B and HIV identified antenatally were previously known to be positive.

Out of the 279 women reported as being hepatitis B positive at antenatal screening in the South East in 2015, 27% were newly diagnosed (75) and 73% were already known to be positive (201 were retested and three were not) (Figure 9, Appendix 9)[2]. This was a reduction in the proportion of all hepatitis B positives that were new diagnoses from a peak of 41% of women in 2012 (to 27% in 2015).

Out of the 105 women identified as positive for HIV in the South East in 2015, 18% were newly diagnosed (19) and 82% were already known to be positive (71 were retested and 15 were not) (Figure 9, Appendix 11)[2]. This was also a reduction in the proportion of all HIV positives that were new diagnoses from a peak of 28% of women in 2011.

Figure 9: Percentage of women reported to be hepatitis B and HIV positive during antenatal care that are newly diagnosed with hepatitis B and HIV during their current pregnancy, the South East, 2011 to 2015[2] (regardless of whether they were retested)

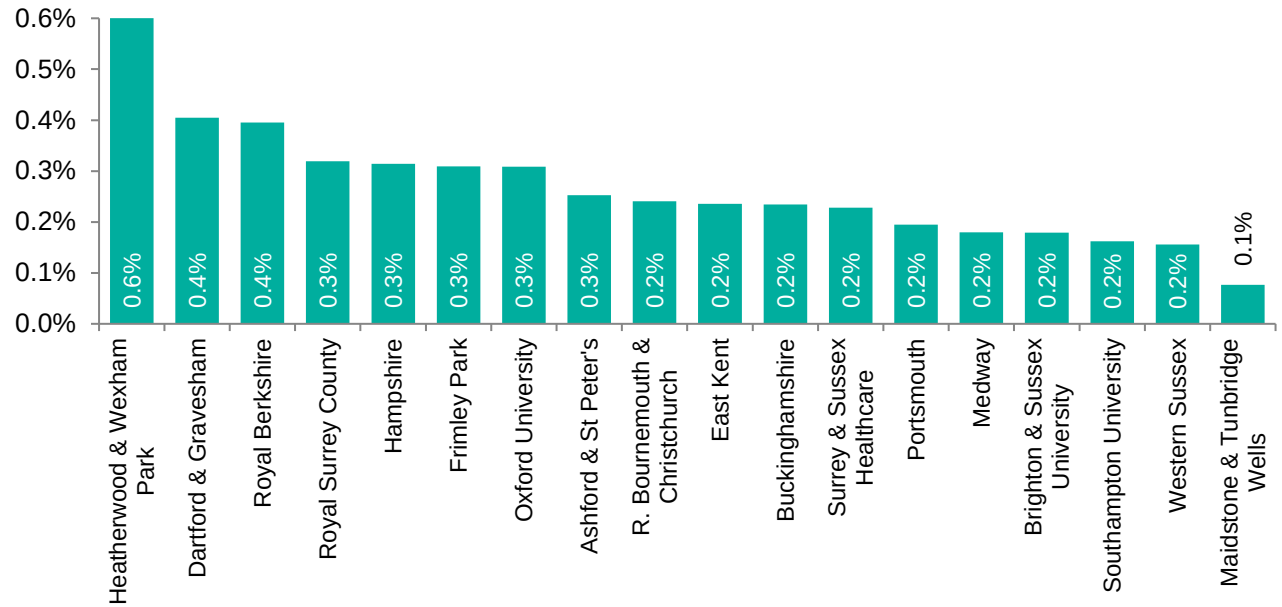


Hepatitis B positivity by maternity unit

There was marked variation in the positivity rate (the percentage of those tested who test positive) for hepatitis B in maternity units in the South East (Figure 10, Appendix 8). The positivity rate ranged from 0.1% to 0.6% in 2015 across maternity units in the South East[2].

Figure 10: The positivity rate (percentage of those tested who test positive, regardless of whether they have tested positive before) for hepatitis B by maternity unit in the South East, 2015[2]

Trusts which reported one to four positives are omitted because of the risk of deductive disclosure. Please see Appendix 8.

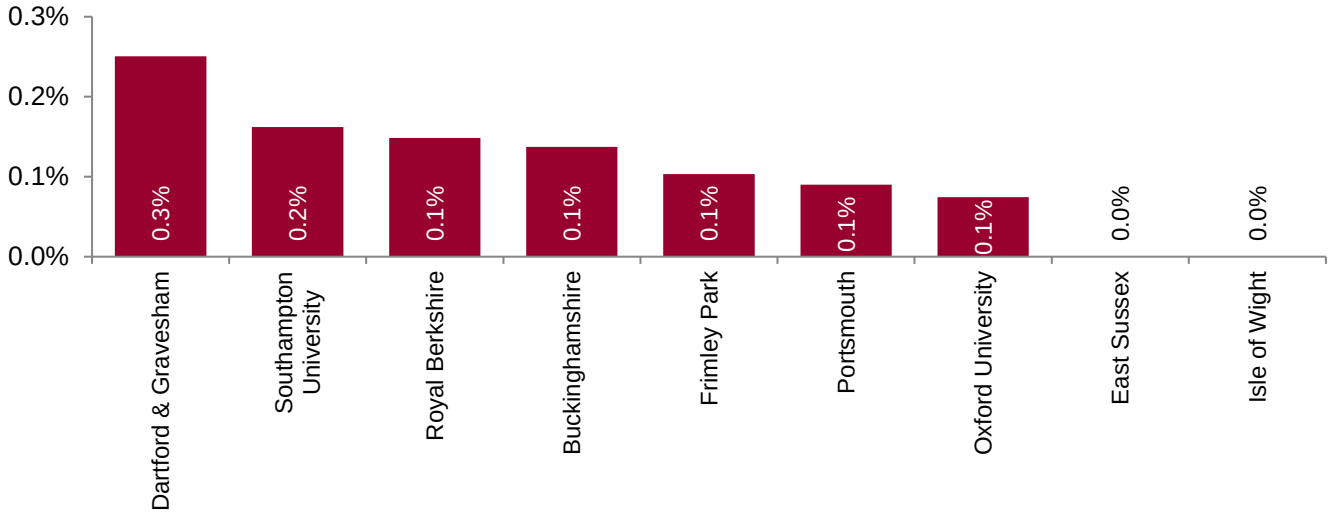


HIV positivity by maternity unit

The positivity rate (the percentage of those tested who test positive) for HIV also varied, ranging from 0% to 0.3% across maternity units in the South East[2] (Figure 11, Appendix 10).

Figure 11: The positivity rate (percentage of those tested who test positive, regardless of whether they have tested positive before) for HIV by maternity unit in the South East, 2015[2]

Trusts which reported one to four positives are omitted because of the risk of deductive disclosure. Please see Appendix 10.

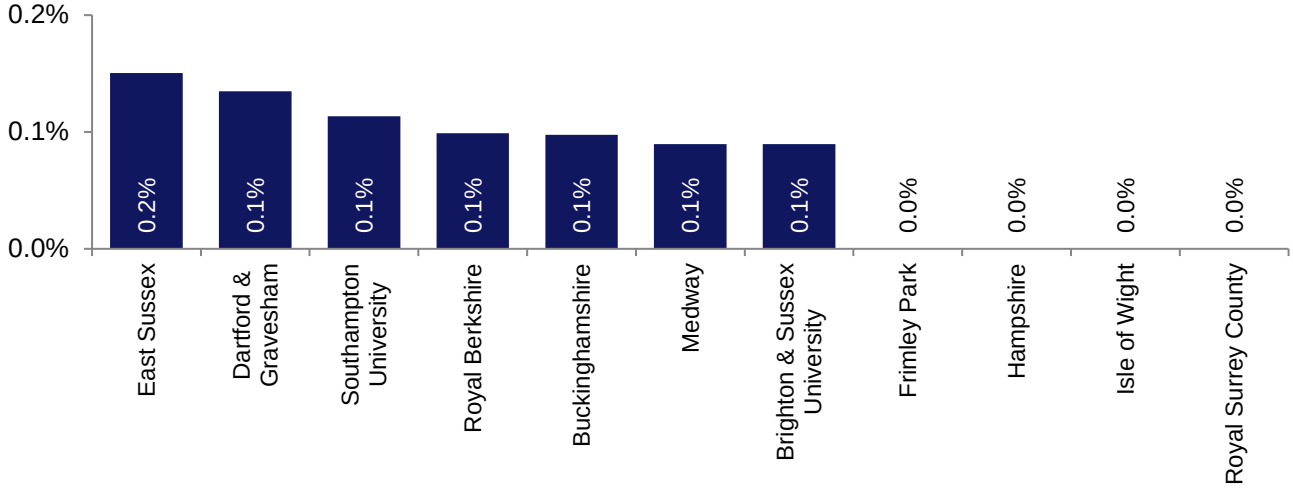


Syphilis positivity by maternity unit

The percentage of women tested positive ranged from 0% to 0.2% in 2015 in the South East (Figure 12, Appendix 12)[2]. It is important to note that a positive screening test does not always mean that a person has a current syphilis infection. A clinical review and confirmatory testing is needed for those who test positive.

Figure 12: Percentage of women who were tested antenatally who tested positive for syphilis by maternity unit in the South East, 2015[2]

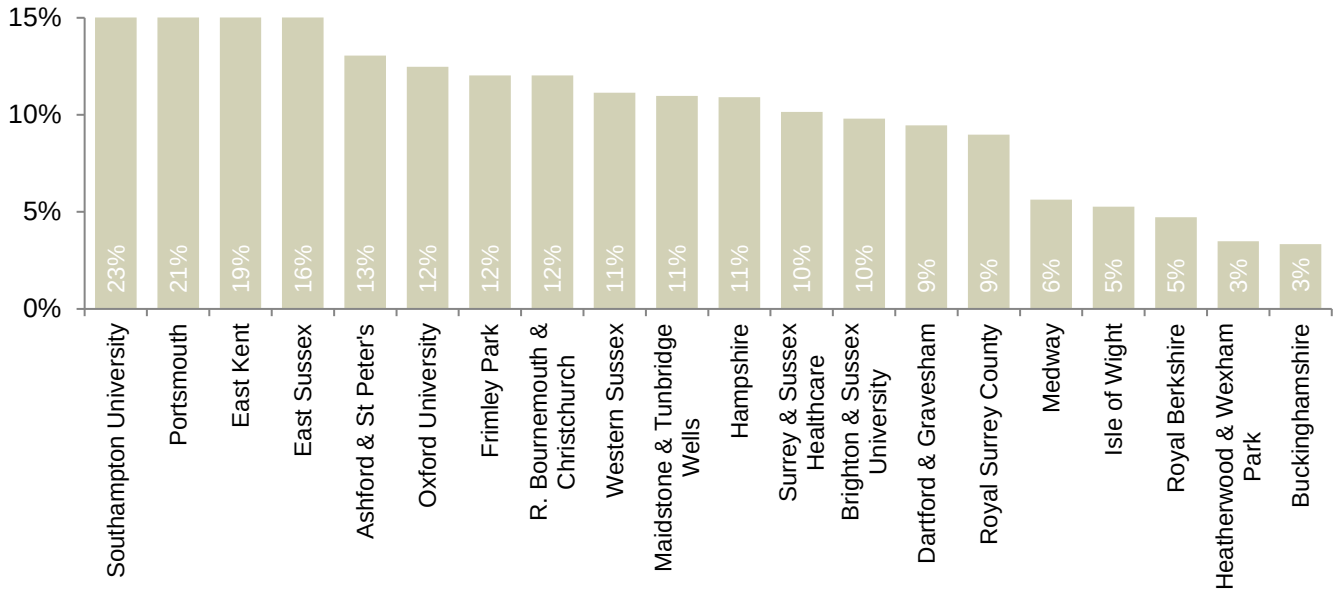
Trusts which reported one to four positives are omitted because of the risk of deductive disclosure. Please see Appendix 12.



Rubella antibody negativity by maternity unit

The percentage of women without demonstrable antibodies to rubella ranged from 3% to 23% in 2015 in the South East (Figure 13, Appendix 13)[2].

Figure 13: Percentage of women who screened negative for rubella by maternity unit in the South East, 2015[2]



Discussion

The uptake of infectious disease screening in the South East is very high with all but one maternity unit screening more than 95% of women attending antenatal clinics for all four infections.

The lower burden of hepatitis B, HIV and syphilis infection in the South East may reflect fewer women in high risk groups, particularly those born abroad. Most women reported as having hepatitis B and HIV identified antenatally were previously known to be positive. The proportion that were new diagnoses has reduced since 2011, suggesting these infections are being identified sooner among these women.

There has been an increase over time in the proportion of women screening negative for rubella antibodies. The explanation for this is likely to be multi-factorial but the following may contribute:

- variation in laboratory testing assays and cut-off values used and the difficulty in defining susceptibility. The current serological method of testing is not thought to provide an accurate reflection of women's ability to mount an immune response to rubella if exposed[3]
- an increase in the relative number of women in the antenatal screening cohort who spent their childhood in low prevalence countries where they have been neither exposed to infection with rubella or immunised against rubella

Following a review of evidence by the UK National Screening Committee (UK NSC) in 2003 and 2012, it was decided to stop rubella susceptibility screening in pregnancy in England on 1 April 2016[4].

On both occasions, the Committee found that screening for rubella susceptibility during pregnancy no longer met the criteria for a screening programme and should be discontinued because:

- rubella infection levels in the UK are so low they are defined as eliminated by the World Health Organization
- rubella infection in pregnancy is very rare
- being fully immunised with the measles, mumps and rubella (MMR) vaccine before becoming pregnant is more effective in protecting women against rubella in pregnancy
- the screening test used can potentially give inaccurate results and cause unnecessary stress among women

PHE's advice regarding rubella for women who are planning a pregnancy is that:

- their medical records should be checked at appropriate opportunities to ensure that they have had two doses of MMR, and vaccine offered if they have not. This may occur, for example, when they register with a new GP, attend a family planning clinic or travel abroad
- they should receive the vaccine before trying for a baby; two doses will also give protection against mumps and measles

Despite the low numbers of positives, antental screening still diagnoses a number of unknown serious infections in women in the South East. It remains important to ensure that patient pathways for further diagnostic tests and interventions are robust, so that the woman can receive the necessary care and the risk of transmission to the child is reduced. This should include reviewing how many babies of mothers identified as hepatitis B are subsequently reported by child health teams as having completed vaccination.

Quality assurance for the infectious disease in pregnancy screening programme includes the quality standards and Key Performance Indicators. Quality standards for IDPS were updated in 2016 with the aim to facilitate further improvements in screening for antenatal infections. These standards can be found at: www.gov.uk/government/publications/infectious-diseases-in-pregnancy-screening-programme-standards

Glossary

FES	Field Epidemiology Service
FES SEaL	Field Epidemiology Service South East and London
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
LIMS	Laboratory Information Management System
NHS IDPS	NHS Infectious Diseases in Pregnancy Screening Programme
MMR	Measles, mumps and rubella vaccine
NAISM	National Antenatal Infections Screening Monitoring
NHS	National Health Service
UK NSC	UK National Screening Committee
PHE	Public Health England
PHEC	Public Health England Centre
RACHSM	Regional Antenatal/Child Health Screening Manager

About Field Epidemiology Services

The Field Epidemiology Service (FES) supports Public Health England Centres and partner organisations through the application of epidemiological methods to inform public health action.

FES does this in two main ways. Firstly, by providing a flexible expert resource available, as and when needed, to undertake epidemiological investigations for key health protection work. Secondly, through the expert analysis, interpretation and dissemination of surveillance information to PHE Centres, local health partners, service providers and commissioners of services.

Within the FES network, excellence and innovation is encouraged. We foster academic collaborations and take active part and lead in research, development and training.

You can contact your local FES team at: fes.seal@phe.gov.uk

If you have any comments or feedback regarding this report or the FES service, please contact: fes.seal@phe.gov.uk

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- screening teams and antenatal leads across the South East – for comments and suggestions

Appendix 1: Rationale for screening

Hepatitis B

Hepatitis B is a viral infection of the cells of the liver. Hepatitis B may cause persistent infections of the liver. Perinatal transmission from mother to baby is a very effective route of transmission of hepatitis B. Infants infected at birth by contact with the virus in their mothers' blood and body fluids are at high risk of developing a persistent (long-term) infection; 90% of those infected as neonates become persistently infected. In adults, only 10% of those infected become persistently infected (chronic carriers). Long-term infection can be associated with liver inflammation, potentially leading to liver cirrhosis, which progresses to liver cancer and death.

The risk of infection to the new-born is dependent on the mother's infectivity. Between 70 to 90% of mothers who are hepatitis B e-antigen (HBeAg) positive will transmit hepatitis B to their infants. Transmission drops to approximately 10% in cases when there is maternal antibody to e-antigen.

Vaccination of the new-born at birth (within 48 hours) and at one, two and 12 months of age from mothers found positive for surface antigen (HBsAg) can prevent perinatal transmission of the infection at birth. Vaccination alone will reduce the risk of infection by 70% and the addition of Hepatitis B Immune Globulin (HBIG) further reduces the risk of infection by 90%.

HIV

Human Immunodeficiency Virus (HIV) attacks cells of the immune system. Particularly the white blood cells called CD4 cells. At the stage where the individual's immune system has broken down, the person is diagnosed as having Acquired Immunodeficiency Syndrome (AIDS). HIV is an important public health issue in the UK. It is an infection associated with serious morbidity, high costs of treatment and care, significant mortality and high number of potential years of life lost.

HIV can be transmitted via the blood, semen, vaginal fluids, and breast milk of an infected person. Most infections are acquired through unprotected sex, both homosexual and heterosexual. Mother to baby transmission during pregnancy and perinatally is important, as the prognosis in infected babies is poor and there is a high mortality in the first two years of life. Without interventions the risk of transmission from mother to baby is 25%, with breast-feeding increasing the risk by a further 15%. If diagnosed early, interventions can reduce mother to baby transmission of HIV from 25 to 40% to less than 2%.

Syphilis

Syphilis is caused by a ‘bacteria-like’ spirochete called *Treponema pallidum*. This organism can be transmitted between partners during sexual intercourse or from an infected pregnant woman across the placenta to her developing foetus.

There are three stages of infection; primary, secondary, and late syphilis. The primary infection may present with a genital sore; secondary symptoms occurring six weeks to six months later can include a non-specific rash. Late sequelae in untreated cases can include a variety of systems including the central nervous system. Infectious syphilis in a pregnant woman can result in miscarriage, stillbirth, or a congenitally infected baby. The risk of mother to baby transmission depends on the stage of the maternal disease with higher risk of transmission during the first four years of infection (70 to 100%). Treatment of maternal infection will reduce the risk of transmission to the baby by 80 to 90%.

Rubella antibodies

Rubella is a virus of the Togaviridae group. Once an individual has become infected with the rubella virus it can cause a systemic infection that may be characterised by a rash or fever. The virus is spread from person to person by inhalation of respiratory droplets from an infected individual. Rubella immunisation was introduced in the UK in 1970 for pre-adolescent girls and non-immune women of childbearing age, to protect them from the risks of rubella in pregnancy.

In 1988, measles, mumps and rubella vaccine (MMR) was introduced for all children. Due to the success of the vaccination programme there are now very few cases of rubella infection in the UK. However, because of a fluctuation in the uptake of MMR vaccine, the threat of infection in children is still present and can put the pregnant mother at risk of infection.

The most critical time for rubella infection for the foetus is during the first trimester, with the risk to the baby declining with infections caught later in pregnancy. The most common-features of congenital rubella include; intrauterine growth restriction, central nervous system defects, heart defects, deafness, or retinopathy/cataracts.

The intervention in the case of a non-immune mother is to offer immunisation after she has delivered her baby to prevent infection in future pregnancies. Pregnant mothers must not be given rubella vaccine, as it is a ‘live-vaccine’.

Following a review of evidence by the UK National Screening Committee (UK NSC) in 2003 and 2012 [5, 6], it was decided to stop rubella susceptibility screening in pregnancy in England on 1 April 2016[4].

On both occasions the Committee found that screening for rubella susceptibility during pregnancy no longer met the criteria for a screening programme and should be discontinued because:

- rubella infection levels in the UK are so low they are defined as eliminated by the World Health Organization
- rubella infection in pregnancy is very rare
- being fully immunised with the measles, mumps and rubella (MMR) vaccine before becoming pregnant is more effective in protecting women against rubella in pregnancy
- the screening test used can potentially give inaccurate results and cause unnecessary stress among women

PHE's advice regarding women who are planning a pregnancy on the MMR vaccination is that:

- their medical records should be checked at appropriate opportunities to ensure that they have had two doses of MMR, and vaccine offered if they have not. This may occur, for example, when they register with a new GP, attend a family planning clinic or travel abroad
- they should receive the vaccine before trying for a baby; two doses will also give protection against mumps and measles

Appendix 2: Standards in place for the screening programme

The 2003 Department of Health's Screening for Infectious Diseases in Pregnancy Standards set a target of 90% for the uptake of antenatal screening for HIV[8]. This was the only infection with such a target until the 2010 revised Standards retained this 90% uptake target as a reference point for all four infections[9].

In 2009, the UK National Screening Committee agreed on a set of Key Performance Indicators (KPIs) as part of a strategy for the collation and return of Quality Assurance and performance data[9]. Two of these indicators are related to infectious diseases screening in pregnancy: HIV coverage and the timely referral of hepatitis B positive women for specialist assessment.

Quality assurance for the infectious disease in pregnancy screening programme includes the quality standards and Key Performance Indicators. Quality standards for IDPS were updated in 2016 with the aim to facilitate further improvements in screening for antenatal infections. These standards can be found at: www.gov.uk/government/publications/infectious-diseases-in-pregnancy-screening-programme-standards

Since the introduction of KPI reporting, data collection processes have been actively reviewed by South East NHS Trusts and the regional coordinator to ensure data is as robust as possible. As a result, the quality of screening monitoring data is expected to improve over the coming years.

Appendix 3: Data sources and limitations

National Antenatal Infections Screening Monitoring (NAISM)[2]

Since 2004, the National Antenatal Infections Screening Monitoring (NAISM) has been monitoring the uptake and test results of antenatal screening, which is offered to all pregnant women in England as part of the NHS Infectious Diseases in Pregnancy Screening Programme.

PHE collected and collated data on screening uptake and screening test results. A proforma was sent out by the Field Epidemiology Service South East and London (FES SEaL) team to each Antenatal Screening Coordinator or identified lead in each maternity unit on a quarterly basis requesting data on:

- number of pregnant women booked for antenatal care
- number offered testing for infections
- number of women declining testing
- number of pregnant women tested
- reasons for differences between number booked and number tested, where relevant
- number of newly diagnosed women (hepatitis B and HIV)
- number of previously diagnosed women rescreened this pregnancy (hepatitis B and HIV)
- number of previously diagnosed women not rescreened (hepatitis B and HIV)
- number of women with positive syphilis test results
- number of women negative for rubella antibodies (susceptible to rubella infection)

The data was then checked for completeness, entered and held in a secure Microsoft Access database by the FES SEaL team.

Local data sources

Maternity clinics in the South East derive data on the number of women using the antenatal service (bookings) and those accepting screening from a centralised hospital electronic database (HMIS). Laboratory test results may now be integrated into the HMIS system but historically were derived from a separate laboratory database (LIMS).

Calculation

The uptake of screening is calculated as the number of women tested divided by the number of women booked for antenatal screening multiplied by 100. Where information was available, the number of women transferred or not offered a test with a valid reason, were removed from the numbers of women booked. Where the number of women booked for screening was not stated explicitly, this figure was substituted with

the number offered screening or derived from the sum of those declining screening and those tested.

$$Screening\ Uptake\ (\%) = \frac{Number\ of\ women\ tested}{Number\ of\ women\ booked} \times 100$$

The positivity rate for hepatitis B and HIV is calculated as the number of women newly diagnosed plus previously diagnosed but retested at this pregnancy divided by the number of women tested multiplied by 100.

$$Positivity\ rate\ for\ Hep\ B\ or\ HIV\ (\%) = \frac{No.of\ newly\ diagnosed\ + previously\ diagnosed\ but\ retested}{Number\ of\ women\ tested} \times 100$$

The percentage of hepatitis B and HIV that is newly diagnosed is calculated as the number of women newly diagnosed divided by the total number who were reported as being positive regardless of whether they were retested.

$$Newly\ diagnosed\ Hep\ B\ or\ HIV\ (\%) = \frac{Number\ of\ women\ newly\ diagnosed}{Number\ of\ all\ women\ known\ to\ be\ positive} \times 100$$

The proportion of women susceptible to rubella infection is calculated as number of women negative for rubella antibodies divided by number of women tested multiplied by 100.

$$Rubella\ susceptible\ (\%) = \frac{Number\ of\ women\ negative\ for\ rubella\ antibodies}{Number\ of\ women\ tested} \times 100$$

Data limitations

Capping

Most of the information is now held on electronic databases but a small number of clinics collect the data from paper records. An automated data extraction system for the collection of data for Key Performance Indicators (KPI) has been developed by the Maternity and Child Health Services department, and is currently being rolled out across England with the caveat that all clinics present their source data in electronic form.

Where screening test results were historically derived from a separate laboratory database, difficulties were encountered in accurately determining which results pertained to the women who had attended antenatal care appointments. This affects data collected prior to 2012.

In addition, laboratory screening tests are not always performed in the same quarter as the date of booking. In the South East this has resulted in a surfeit in the number screened compared to those booked in the affected quarter for 9% of returns in the last five years, affecting the calculation of screening uptake. This issue has improved over time due to better integration of booking and laboratory data sources.

Appendix 4

Table A4: Uptake of hepatitis B screening tests by maternity unit in the South East, 2015[2]

Clinic/trust	Quarters received	Bookings	Tests (n)	Qs inc	Qs capped	Uptake (%)
Ashford & St Peter's	4	4,356	4,352	4	0	99.9%
Brighton & Sussex University	4	5,705	5,581	4	0	97.8%
Buckinghamshire	4	5,123	5,123	4	0	100.0%
Dartford & Gravesham	4	5,428	5,190	4	0	95.6%
East Kent	4	7,428	7,216	4	0	97.1%
East Sussex	4	3,479	3,305	4	0	95.0%
Frimley Park	4	5,851	5,821	4	0	99.5%
Hampshire	4	6,057	6,045	4	0	99.8%
Heatherwood & Wexham Park	4	4,991	4,962	4	0	99.4%
Isle of Wight	4	1,374	1,346	4	0	98.0%
Maidstone & Tunbridge Wells	4	6,543	6,526	4	0	99.7%
Medway	4	5,597	5,574	4	0	99.6%
Oxford University	4	9,435	9,396	4	0	99.6%
Portsmouth	4	6,689	6,664	4	0	99.6%
R. Bournemouth & Christchurch	4	2,920	2,905	4	0	99.5%
Royal Berkshire	4	6,084	6,069	4	0	99.8%
Royal Surrey County	4	3,448	3,443	4	0	99.9%
Southampton University	4	6,230	6,170	4	0	99.0%
Surrey & Sussex Healthcare	4	5,271	5,266	4	0	99.9%
Western Sussex	4	5,792	5,784	4	0	99.9%
SOUTH EAST	**80**	**107,801**	**106,738**	**80**	**0**	**99.0%**

Appendix 5

Table A5. Uptake of HIV screening tests by maternity unit in the South East, 2015[2]

Clinic/trust	Quarters received	Bookings	Tests (n)	Qs inc	Qs capped	Uptake (%)
Ashford & St Peter's	4	4,356	4,350	4	0	99.9%
Brighton & Sussex University	4	5,705	5,577	4	0	97.8%
Buckinghamshire	4	5,123	5,105	4	0	99.6%
Dartford & Gravesham	4	5,428	5,188	4	0	95.6%
East Kent	4	5,550	5,388	3	0	97.1%
East Sussex	4	3,479	3,305	4	0	95.0%
Frimley Park	4	5,851	5,821	4	0	99.5%
Hampshire	4	6,057	6,048	4	0	99.9%
Heatherwood & Wexham Park	4	4,991	4,954	4	0	99.3%
Isle of Wight	4	1,374	1,348	4	0	98.1%
Maidstone & Tunbridge Wells	4	6,543	6,525	4	0	99.7%
Medway	4	5,597	5,574	4	0	99.6%
Oxford University	4	9,435	9,391	4	0	99.5%
Portsmouth	4	6,689	6,658	4	0	99.5%
R. Bournemouth & Christchurch	4	2,920	2,904	4	0	99.5%
Royal Berkshire	4	6,084	6,069	4	0	99.8%
Royal Surrey County	4	3,448	3,443	4	0	99.9%
Southampton University	4	6,230	6,169	4	0	99.0%
Surrey & Sussex Healthcare	4	5,271	5,266	4	0	99.9%
Western Sussex	4	5,792	5,784	4	0	99.9%
SOUTH EAST	**80**	**105,923**	**104,867**	**79**	**0**	**99.0%**

Appendix 6

Table A6: Uptake of syphilis screening tests by maternity unit in the South East, 2015[2]

Clinic/trust	Quarters received	Bookings	Tests (n)	Qs inc	Qs capped	Uptake (%)
Ashford & St Peter's	4	4,356	4,352	4	0	99.9%
Brighton & Sussex University	4	5,705	5,583	4	0	97.9%
Buckinghamshire	4	5,123	5,123	4	0	100.0%
Dartford & Gravesham	4	5,428	5,190	4	0	95.6%
East Kent	4	7,428	7,216	4	0	97.1%
East Sussex	4	3,479	3,322	4	0	95.5%
Frimley Park	4	5,851	5,821	4	0	99.5%
Hampshire	4	6,057	6,049	4	1	99.9%
Heatherwood & Wexham Park	4	4,991	4,956	4	0	99.3%
Isle of Wight	4	1,374	1,348	4	0	98.1%
Maidstone & Tunbridge Wells	4	6,543	6,526	4	0	99.7%
Medway	4	5,597	5,574	4	0	99.6%
Oxford University	4	9,435	9,395	4	0	99.6%
Portsmouth	4	6,689	6,666	4	0	99.7%
R. Bournemouth & Christchurch	4	2,920	2,906	4	0	99.5%
Royal Berkshire	4	6,084	6,069	4	0	99.8%
Royal Surrey County	4	3,448	3,443	4	0	99.9%
Southampton University	4	6,230	6,173	4	0	99.1%
Surrey & Sussex Healthcare	4	5,271	5,269	4	0	100.0%
Western Sussex	4	5,792	5,784	4	0	99.9%
SOUTH EAST	**80**	**107,801**	**106,765**	**80**	**1**	**99.0%**

Appendix 7

Table A7: Uptake of rubella screening tests by maternity unit in the South East, 2015[2]

Clinic/trust	Quarters received	Bookings	Tests (n)	Qs inc	Qs capped	Uptake (%)
Ashford & St Peter's	4	4,356	4,352	4	0	99.9%
Brighton & Sussex University	4	5,705	5,585	4	0	97.9%
Buckinghamshire	4	5,123	5,123	4	0	100.0%
Dartford & Gravesham	4	5,428	5,191	4	0	95.6%
East Kent	4	7,428	7,217	4	0	97.2%
East Sussex	4	3,479	3,322	4	0	95.5%
Frimley Park	4	5,851	5,821	4	0	99.5%
Hampshire	4	6,057	6,048	4	0	99.9%
Heatherwood & Wexham Park	4	4,991	4,962	4	0	99.4%
Isle of Wight	4	1,374	1,346	4	0	98.0%
Maidstone & Tunbridge Wells	4	6,543	6,528	4	0	99.8%
Medway	4	5,597	5,574	4	0	99.6%
Oxford University	4	9,435	9,397	4	0	99.6%
Portsmouth	4	6,689	6,666	4	0	99.7%
R. Bournemouth & Christchurch	4	2,920	2,911	4	0	99.7%
Royal Berkshire	4	6,084	6,069	4	0	99.8%
Royal Surrey County	4	3,448	3,443	4	0	99.9%
Southampton University	4	6,230	6,174	4	0	99.1%
Surrey & Sussex Healthcare	4	5,271	5,269	4	0	100.0%
Western Sussex	4	5,792	5,784	4	0	99.9%
SOUTH EAST	**80**	**107,801**	**106,782**	**80**	**0**	**99.1%**

Appendix 8

Table A8: Antenatal screening Hepatitis B test positivity rate by maternity unit in the South East, 2015[2]

Clinic/trust	Quarters received	Tested	Positives (n)	Quarters included	Positivity (%)
Ashford & St Peter's	4	4352	11	4	0.3%
Brighton & Sussex University	4	5581	10	4	0.2%
Buckinghamshire	4	5123	12	4	0.2%
Dartford & Gravesham	4	5190	21	4	0.4%
East Kent	4	7216	17	4	0.2%
East Sussex	4	3305	<10*	4	<0.4%
Frimley Park	4	5821	18	4	0.3%
Hampshire	4	6045	19	4	0.3%
Heatherwood & Wexham Park	4	4962	32	4	0.6%
Isle of Wight	4	1346	<5*	4	<0.4%
Maidstone & Tunbridge Wells	4	6526	5	4	0.1%
Medway	4	5574	10	4	0.2%
Oxford University	4	9396	29	4	0.3%
Portsmouth	4	6664	13	4	0.2%
R. Bournemouth & Christchurch	4	2905	7	4	0.2%
Royal Berkshire	4	6069	24	4	0.4%
Royal Surrey County	4	3443	11	4	0.3%
Southampton University	4	6170	10	4	0.2%
Surrey & Sussex Healthcare	4	5266	12	4	0.2%
Western Sussex	4	5784	9	4	0.2%
SOUTH EAST	**80**	**106738**	**276**	**80**	**0.3%**

*To prevent deductive disclosure numbers between one to four have been masked. In cases where this occurs only in one trust another trust has been masked.

Appendix 9

Table A9: Hepatitis B positives by type of positive and South East maternity unit, ordered by percentage of positives that were new: 2015[2]

Clinic/trust	New positive	Prior known positive and retested	Prior known positive and not retested	Percentage newly positive
Ashford & St Peter's	6	5	0	55%
Heatherwood & Wexham Park	17	15	0	53%
East Kent	8	9	0	47%
Oxford University	12	17	0	41%
Royal Surrey County	4	7	0	36%
Southampton University	3	7	0	30%
R. Bournemouth & Christchurch	2	5	0	29%
Portsmouth	3	10	0	23%
Frimley Park	4	14	0	22%
Western Sussex	2	7	0	22%
Royal Berkshire	5	19	0	21%
Maidstone & Tunbridge Wells	1	4	0	20%
Medway	2	8	0	20%
Surrey & Sussex Healthcare	3	9	3	20%
Hampshire	2	17	0	11%
Buckinghamshire	1	11	0	8%
Brighton & Sussex University	0	10	0	0%
Dartford & Gravesham	0	21	0	0%
East Sussex	<10*	<10*	0	n/a
Isle of Wight	<5*	<5*	0	n/a
SOUTH EAST	**75**	**201**	**3**	**27%**

*To prevent deductive disclosure numbers between one to four have been masked. In cases where this occurs only in one trust another trust has been masked.

n/a - % not available due to masking.

Appendix 10

Table A10: Antenatal screening HIV test positivity by maternity unit in the South East, 2015[2]

Clinic/trust	Quarters received	Tested	Positives (n)	Quarters included	Positivity (%)
Ashford & St Peter's	4	4350	<5*	4	<0.2%
Brighton & Sussex University	4	5577	<5*	4	<0.1%
Buckinghamshire	4	5105	7	4	0.1%
Dartford & Gravesham	4	5188	13	4	0.3%
East Kent	4	5388	<5*	3	<0.1%
East Sussex	4	3305	0	4	0.0%
Frimley Park	4	5821	6	4	0.1%
Hampshire	4	6048	<5*	4	<0.1%
Heatherwood & Wexham Park	4	4954	<5*	4	0.0%
Isle of Wight	4	1348	0	4	0.0%
Maidstone & Tunbridge Wells	4	6525	<5*	4	<0.1%
Medway	4	5574	<5*	4	<0.1%
Oxford University	4	9391	7	4	0.1%
Portsmouth	4	6658	6	4	0.1%
R. Bournemouth & Christchurch	4	2904	<5*	4	<0.2%
Royal Berkshire	4	6069	9	4	0.1%
Royal Surrey County	4	3443	<5*	4	<0.2%
Southampton University	4	6169	10	4	0.2%
Surrey & Sussex Healthcare	4	5266	<5*	4	<0.1%
Western Sussex	4	5784	<5*	4	<0.1%
SOUTH EAST	**80**	**104867**	**90**	**79**	**0.1%**

*To prevent deductive disclosure numbers between one to four have been masked.

Appendix 11

Table A11: HIV positives by type of positive and South East maternity unit, ordered by percentage of positives that were new: 2015[2]

Clinic/trust	New positive	Prior known positive and retested	Prior known positive and not retested	Percentage newly positive
Buckinghamshire	3	4	0	43%
Dartford & Gravesham	3	10	2	20%
Frimley Park	1	5	0	17%
Portsmouth	1	5	0	17%
Oxford University	1	6	0	14%
Royal Berkshire	1	8	0	11%
Ashford & St Peter's	0	<5*	<5*	0%
Brighton & Sussex University	0	<5*	7	0%
Maidstone & Tunbridge Wells	0	<5*	0	0%
Medway	0	<5*	0	0%
R. Bournemouth & Christchurch	0	<5*	0	0%
Southampton University	0	10	1	0%
Heatherwood & Wexham Park	<5*	0	0	n/a
East Kent	<5*	<5*	0	n/a
Surrey & Sussex Healthcare	<5*	<5*	<5*	n/a
Hampshire	<5*	<5*	0	n/a
Royal Surrey County	<5*	<5*	0	n/a
Western Sussex	<5*	<5*	0	n/a
East Sussex	0	0	0	–
Isle of Wight	0	0	0	–
SOUTH EAST	**19**	**79**	**23**	**16%**

*To prevent deductive disclosure numbers between one to four have been masked.

n/a - % not available due to masking.

Appendix 12

Table A12: Antenatal screening syphilis test positivity by maternity unit in the South East, 2015[2]

Clinic/trust	Quarters received	Tested	Positives (n)	Quarters included	Positivity (%)
Ashford & St Peter's	4	4,352	<5*	4	<0.2%
Brighton & Sussex University	4	5,583	5	4	0.1%
Buckinghamshire	4	5,123	5	4	0.1%
Dartford & Gravesham	4	5,190	7	4	0.1%
East Kent	4	7,216	<5*	4	<0.1%
East Sussex	4	3,322	5	4	0.2%
Frimley Park	4	5,821	0	4	0.0%
Hampshire	4	6,148	0	4	0.0%
Heatherwood & Wexham Park	4	4,956	<5*	4	<0.2%
Isle of Wight	4	1,348	0	4	0.0%
Maidstone & Tunbridge Wells	4	6,526	<5*	4	<0.1%
Medway	4	5,574	5	4	0.1%
Oxford University	4	9,395	<5*	4	<0.1%
Portsmouth	4	6,666	<5*	4	<0.1%
R. Bournemouth & Christchurch	4	2,906	<5*	4	<0.2%
Royal Berkshire	4	6,069	6	4	0.1%
Royal Surrey County	4	3,443	0	4	0.0%
Southampton University	4	6,173	7	4	0.1%
Surrey & Sussex Healthcare	4	5,269	<5*	4	<0.1%
Western Sussex	4	5,784	<5*	4	<0.1%
SOUTH EAST	**80**	**106,864**	**61**	**80**	**0.1%**

*To prevent deductive disclosure numbers between one to four have been masked.

Appendix 13

Table A13: Antenatal screening rubella antibody test negativity by maternity unit in the South East, 2015[2]

Clinic/trust	Quarters received	Tested	Susceptible (n)	Quarters included	Susceptible (%)
Ashford & St Peter's	4	4,352	568	4	13.1%
Brighton & Sussex University	4	5,585	548	4	9.8%
Buckinghamshire	4	5,123	171	4	3.3%
Dartford & Gravesham	4	5,191	491	4	9.5%
East Kent	4	7,217	1,343	4	18.6%
East Sussex	4	3,322	531	4	16.0%
Frimley Park	4	5,821	700	4	12.0%
Hampshire	4	6,048	660	4	10.9%
Heatherwood & Wexham Park	4	4,962	173	4	3.5%
Isle of Wight	4	1,346	71	4	5.3%
Maidstone & Tunbridge Wells	4	6,528	716	4	11.0%
Medway	4	4,172	235	3	5.6%
Oxford University	4	9,397	1,172	4	12.5%
Portsmouth	4	6,666	1,379	4	20.7%
R. Bournemouth & Christchurch	4	2,911	350	4	12.0%
Royal Berkshire	4	6,069	287	4	4.7%
Royal Surrey County	4	3,443	309	4	9.0%
Southampton University	4	6,174	1,434	4	23.2%
Surrey & Sussex Healthcare	4	5,269	535	4	10.2%
Western Sussex	4	5,784	644	4	11.1%
SOUTH EAST	**80**	**105,380**	**12317**	**79**	**11.7%**

References

1. Department of Health. A Framework for Sexual Health Improvement in England. 2013. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/142592/9287-2900714-TSO-SexualHealthPolicyNW_ACCESSIBLE.pdf

2. Public Health England. National Antenatal Infections Screening Monitoring programme.

3. Public Health England. Antenatal screening for infectious diseases in England: summary report for 2015. Health Protection Report: 2017 volume 11, number 2. Available from: www.gov.uk/government/uploads/system/uploads/attachment_data/file/583576/hpr0217_naism.pdf

4. Public Health England. Public Health England will end rubella (German measles) susceptibility screening in pregnancy in England on 1 April 2016. Available from: www.gov.uk/government/news/rubella-susceptibility-screening-in-pregnancy-to-end-in-england

5. Tookey P. Review of antenatal rubella susceptibility screening and the standard criteria for screening. Institute of Child Health, UCL, 2012. Available from: legacy.screening.nhs.uk/rubellasusceptibility

6. UK National Screening Committee. Rubella Susceptibility Screening in Pregnancy Policy Position Statement. 2012. Available from: legacy.screening.nhs.uk/rubellasusceptibility

7. Department of Health. Screening for infectious diseases in pregnancy: Standards to support the UK antenatal screening programme, 2003. Available from: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4050934

8. UK National Screening Committee. Infectious Diseases in Pregnancy Screening Programme Standards. 2010. Available from: infectiousdiseases.screening.nhs.uk/standards