Public Health England

Health Protection Report
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Infections reports in this issue of *HPR*

A summary report on the uptake and test results of antenatal screening for hepatitis B, HIV, syphilis and rubella susceptibility in 2014 in England is published in the infections reports section of this issue of HPR [1]. The latest data show that uptake of antenatal screening for all infections remains high (>95%) and the proportion of women with a positive test result for either hepatitis B, HIV or, syphilis remains stable, whilst the proportion of women with a rubella antibody level <10 IU/ml has continued to increase. Associated data tables are published in the GOV.UK website [2].

The programme of antenatal screening for infectious diseases is a vital component of antenatal care and continues to play a key role in preventing mother-to-child transmission of HIV, hepatitis B and syphilis. The data is collated by the National Antenatal Infection Screening Monitoring (NAISM) Programme in collaboration with the Infectious Diseases in Pregnancy Screening (IDPS) Programme, now both part of Public Health England.

Latest reports on laboratory-confirmed respiratory infections in England for the weeks 45 to 48 of 2015 are also included in this issue [3].

References

1. Antenatal screening for infectious diseases in England: summary report for 2014, *HPR* **9**(43): HIV-STIs.

2. NAISM annual data tables webpages, https://www.gov.uk/government/publications/national-antenatal-infections-screening-monitoring-annual-data-tables.

3. Laboratory reports of respiratory infections made to PHE from PHE and NHS laboratories in England and Wales: weeks 45 to 48, 2015, *HPR* **9**(43): respiratory infections, https://www.gov.uk/government/publications/respiratory-infections-laboratory-reports-2015.

Ebola virus disease: international epidemiology summary (at 29/11, 2015)

As of 29 November 2015, a total of 28,637 clinically compatible cases of Ebola virus disease (15,249 confirmed) have been reported associated with the West African outbreak, of which 11,315 have died.

A total of three confirmed cases were reported in West Africa in November, all in Liberia. These are the first cases to be reported in the country since it was declared EVD transmission free for

the second time on 3 September 2015. Investigations are ongoing into the origin of infection and over 165 contacts remain under follow up (34 considered high risk).

There have been no confirmed cases reported in Guinea for four consecutive weeks. The country's last case, a one month old baby born in an Ebola treatment unit to a confirmed case, was discharged from hospital on 28 November after blood samples tested negative for the second time on 16 November.

On 7 November, Sierra Leone was declared EVD-transmission free following the elapse of two EVD incubation periods (42 days) since the last case had a second negative blood test. The country then began a 90-day period of enhanced surveillance which will run until 5 February 2016.

A UK survivor of EVD re-hospitalised in early October due to late EVD-related complications was discharged from the Royal Free Hospital in London on 11 November after making a full recovery from EVD.

Countries currently or previously affected by EVD (as of 29 November 2015)

Country	Total clinically compatible cases (CCC[¥])	Total confirmed cases	Total deaths	New confirmed cases this month	Current status (Date declared EVD free)
Guinea	3,804	3,351	2,536	0	**Active transmission in last 42 days**
Liberia*	10,666	3,151	4,806	0	**Declared over 9 May 2015***
	9	9	3	3	**Declared over 3 September 2015**
Sierra Leone	14,122	8,704	3,955	0	**Active transmission in last 21 days**
Italy	1	1	0	–	**EVD free** (20 July 2015)
UK	1	1	0	–	**EVD free** (7 March 2015)
Nigeria	20	19	8	–	**EVD free** (19 Oct 2014)
Senegal	1	1	0	–	**EVD free** (17 Oct 2014)
Spain	1	1	0	–	**EVD free** (2 Dec 2014)
Mali	8	7	6	–	**EVD free** (18 Jan 2015)
USA	4	4	1	–	**EVD free** (23 Oct 2014)
Total	**28,637**	**15,249**	**11,315**	**3**	–

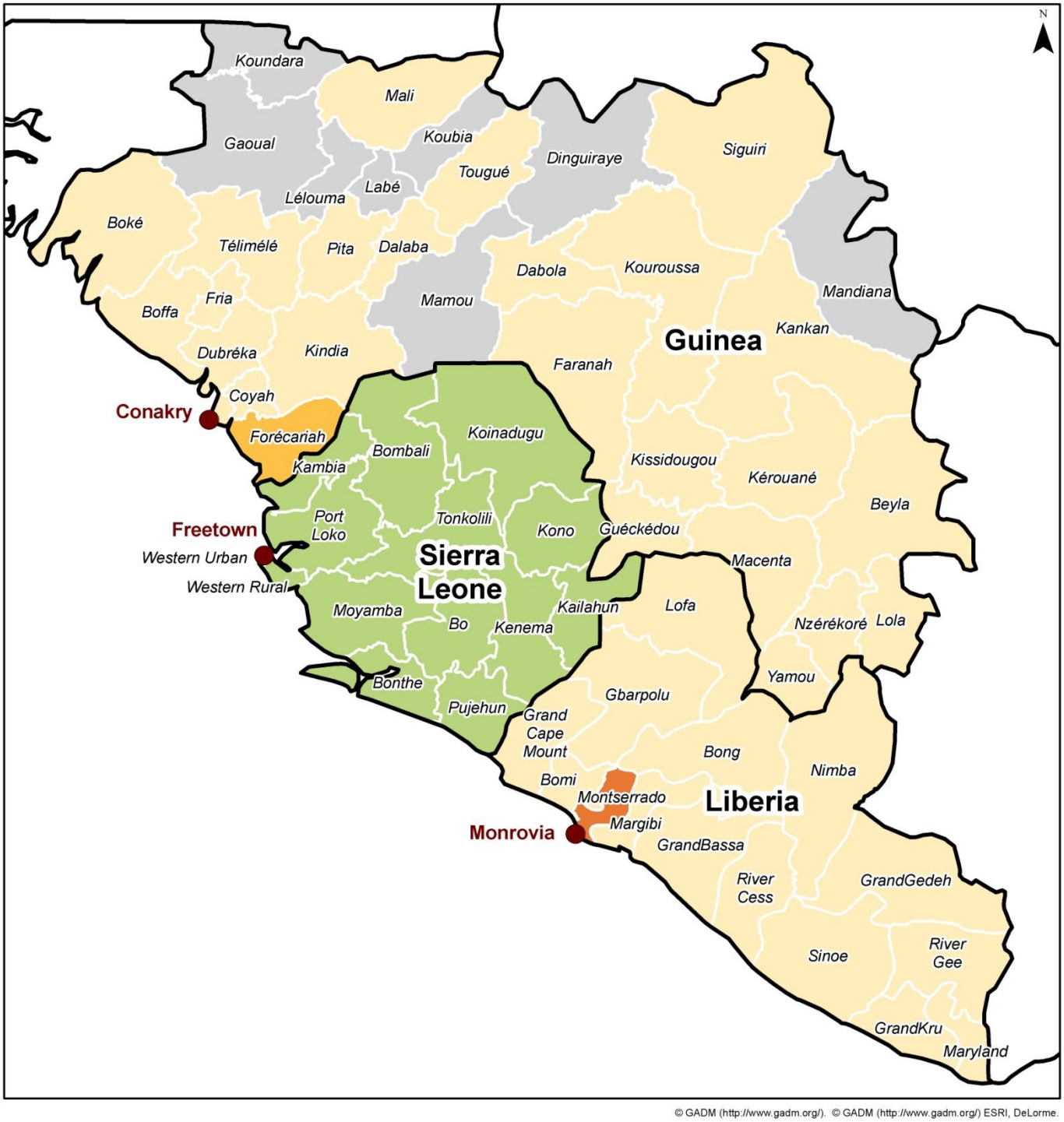
Data source: WHO Ebola Situation Report, 2 December 2015 (Data to 29 November; reporting period is one week: 23-29 November 2015).

[¥] Clinically compatible cases (CCC) represents a combination of suspected, probable and confirmed cases. CCC totals are under constant revision and reclassification as suspect cases are confirmed or discounted.

***** Liberia outbreak 1 was declared over on 9 May 2015. The second row includes all cases reported since 10 May 2015.

For further information see PHE weekly epidemiological update.

Ebola outbreak distribution in affected countries in West Africa (as of 29 November 2015)



Capital Cities

Country Boundaries

WHO data as of 29th November (Source: WHO)

Confirmed cases by district

- Free of Ebola Transmission
- Active transmission
- No active transmission for more than 21 days
- No active transmission for more than 42 days
- Unaffected

Data source: WHO Ebola Situation Report 29 November 2015.

More detailed information is available in PHE's monthly Ebola Epidemiological Update.

Public Health England

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Infection reports

Volume 9 Number 43 Published on: **4 December 2015**

Infection Reports

Respiratory

- **Laboratory reports of respiratory infections made to the CIDSC from PHE and NHS laboratories in England and Wales: weeks 45-48/2015**
- **Respiratory viral detections by any method (culture, direct immunofluorescence, PCR, four-fold rise in paired sera, single high serology titre, genomic, electron microscopy, other method, other method unknown), by week of report: weeks 45-48/2015**
- **Respiratory viral detections by age group: weeks 45-48/2015**
- **Laboratory reports of infections associated with atypical pneumonia, by week of report: weeks 45-48/2015**
- **Laboratory reports of Legionnaires Disease cases in England and Wales, by week of report: weeks 45-48/2015**
- **Laboratory reports of Legionnaires Disease cases in England and Wales, by PHE Centre: weeks 45-48/2015**

HIV-STIs

- **Antenatal screening for infectious diseases in England: summary report for 2014**

Infection reports / Respiratory

Volume 9 Number 43 Published on: 4 December 2015

Laboratory reports of respiratory infections made to PHE Colindale from PHE and NHS laboratories in England and Wales: weeks 45 to 48, 2015

Data are recorded by week of report, but include only specimens taken in the last eight weeks (i.e. recent specimens)

Table 1. Reports of influenza infection made to PHE Colindale, by week of report

Week	Week 45	Week 46	Week 47	Week 48	Total
Week ending	8/11/15	15/11/15	22/11/15	29/11/15	
Influenza A	**35**	**21**	**18**	**21**	**95**
Isolation	13	11	4	11	**39**
DIF *	13	11	4	11	**39**
PCR	18	14	12	10	**54**
Other †	10	6	2	10	**28**
Influenza B	**13**	**11**	**4**	**11**	**39**
Isolation	–	–	–	–	**–**
DIF *	–	1	–	–	**1**
PCR	8	9	4	9	**30**
Other †	5	1	–	2	**8**

* DIF = Direct Immunofluorescence. † Other = "Antibody detection - single high titre" or "Method not specified".

Table 2. Respiratory viral detections by any method (culture, direct immunofluorescence, PCR, four-fold rise in paired sera, single high serology titre, genomic, electron microscopy, other method, other method unknown), by week of report

Week	Week 45	Week 46	Week 47	Week 48	Total
Week ending	8/11/15	15/11/15	22/11/15	29/11/15	
Adenovirus*	67	57	61	77	262
Coronavirus	5	7	13	10	35
Parainfluenza†	115	118	113	118	464
Rhinovirus	345	250	243	297	1135
RSV	307	445	657	753	2162

* Respiratory samples only. † Includes parainfluenza types 1, 2, 3, 4 and untyped.

Table 3. Respiratory viral detections by age group: weeks 45-48/2015

Age group (years)	<1 year	1-4 years	5-14 years	15-44 years	45-64 years	≥65 years	Un-known	Total
Adenovirus *	53	75	23	63	39	8	1	262
Coronavirus	9	10	1	7	5	3	–	**35**
Influenza A	6	11	8	33	26	12	1	97
Influenza B	3	8	2	10	5	4	1	33
Parainfluenza †	131	109	47	58	61	58	–	464
Respiratory syncytial virus	1421	479	35	75	73	73	6	2162
Rhinovirus	423	208	67	139	136	162	–	1135

* Respiratory samples only.
† Includes parainfluenza types 1, 2, 3, 4 and untyped.

Table 4 Laboratory reports of infections associated with atypical pneumonia, by week of report

Week	Week 45	Week 46	Week 47	Week 48	Total
Week ending	**8/11/15**	**15/11/15**	**22/11/15**	**29/11/15**	
Coxiella burnettii	–	–	–	–	–
Respiratory *Chlamydia* sp.*	–	–	1	1	2
Mycoplasma pneumoniae	8	9	15	12	44
Legionella sp.	9	9	6	8	32

* Includes *Chlamydia psittaci*, *Chlamydia pneumoniae*, and *Chlamydia* sp detected from blood, serum, and respiratory specimens.

Table 5 Reports of Legionnaires Disease cases in England and Wales, by week of report

Week	Week 45	Week 46	Week 47	Week 48	Total
Week ending	**8/11/15**	**15/11/15**	**22/11/15**	**29/11/15**	
Nosocomial	–	–	–	2	3
Community	–	4	2	3	9
Travel Abroad	8	5	2	2	17
Travel UK	1	–	1	1	3
Total	**9**	**9**	**6**	**8**	**32**
Male	7	4	5	7	23
Female	2	5	1	1	9

Thirty-two cases were reported with pneumonia. Twenty-three males aged 36 – 89 years and nine females aged 41 – 76 years. Nine cases had community-acquired infection and three cases were reported to be associated with a hospital/healthcare facility. One death was reported in a male aged 87 years.

Twenty cases were reported with travel association:
China (1), China/Thailand (1), Cruise/United Kingdom (1), Egypt (1), Italy (3), Italy/United Kingdom (1), Mexico/United States of America (1), Poland (1), Portugal (1), Spain (1), Spain/United Kingdom (1), Thailand (1), United Arab Emirates (2), United Arab Emirates/United Kingdom (1) and United Kingdom (3).

Table 6. Reports of Legionnaires Disease cases in England.Wales, by PHE Centre: weeks 45-48/2015

Region/Country	Nosocomial	Community	Travel Abroad	Travel UK	Total
North of England					
North East	–	–	–	1	1
Cheshire & Merseyside	–	1	1	–	2
Greater Manchester	–	–	–	–	0
Cumbria & Lancashire	–	–	1	–	1
Yorkshire & the Humber	–	–	–	–	0
South of England					
Devon, Cornwall & Somerset	–	–	2	–	2
Avon, Gloucestershire & Wiltshire	–	2	1	–	3
Wessex	–	–	1	–	1
Thames Valley	–	1	–	–	1
Sussex, Surrey & Kent	–	1	1	2	4
Midlands & East of England					
East Midlands	–	1	2	–	3
South Midlands & Hertfordshire	–	–	–	–	0
Anglia & Essex	–	–	–	–	0
West Midlands	–	–	1	–	1
London Integrated Region					
London	3	2	4	–	**9**
Public Health Wales					
Mid & West Wales	–	–	1	–	1
North Wales	–	–	–	–	0
South East Wales	–	1	–	–	1
Miscellaneous					
Other	–	–	2	–	2
Not known	–	–	–	–	0
Total	**3**	**9**	**17**	**3**	**32**

Infection reports / HIV-STIs

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Antenatal screening for infectious diseases in England: summary report for 2014

This report presents a summary of the uptake and test results of antenatal screening for hepatitis B, HIV, syphilis and rubella susceptibility in 2014 in England, updating the previous HPR report that included data to the end of 2013 [1]. Uptake of screening for all infections remains high (>95%) and the proportion of women with a positive test result for either hepatitis B, HIV or, syphilis remains stable, whilst the proportion of women with a rubella antibody level <10 IU/ml has continued to increase.

Background

Since 2004, Public Health England's National Antenatal Infection Screening Monitoring (NAISM) Programme has had a formal role in centrally collating, analysing and publishing Infectious Diseases in Pregnancy (IDPS) surveillance data for England [1]. This was introduced following the implementation of the 2003 Department of Health standards [2]. The NAISM Programme, in collaboration with the NHS Infectious Diseases in Pregnancy Screening (IDPS) Programme, now both part of Public Health England, monitors the uptake of antenatal screening for hepatitis B, HIV, syphilis and susceptibility to rubella.

Screening should be offered and recommended to all pregnant women in England as part of the NHS IDPS Programme [3]. The screening aims to identify women with hepatitis B, HIV and syphilis early in pregnancy so that strategies can be offered which prevent mother-to-child transmission and benefit the woman's health. Currently, women identified as susceptible to rubella are offered postnatal MMR vaccination to protect future pregnancies.

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. The 2010 revised Standards retained this 90% uptake target as a reference point for all four infections [4]. In 2009, the UK National Screening Committee agreed on a set of Key Performance Indicators (KPIs) as part of a Quality Assurance strategy for the collation and return of performance data. Two of these indicators are related to infectious disease screening in pregnancy: HIV coverage and timely referral of hepatitis B positive women for specialist care [5].

Data collection and methodology

Data are collected at maternity unit or Trust level on the number of pregnant women attending and booking for antenatal care; the number screened for each of the four infections and the results of the screening tests, together with the number of women previously diagnosed with hepatitis B or HIV.

These data are requested and collated by PHE's Field Epidemiology Teams with support from some Regional Antenatal and Newborn Screening Quality Assurance teams and sent to PHE's National Infection Service (NIS), where national figures and trends are generated. The IDPS Programme and NAISM team continue to work collaboratively to align future management of the data collection, collation and reporting processes in 2016/17.

Data limitations

Data quality has improved significantly since 2004, though data still need to be interpreted cautiously as limitations remain. The data analysis methodology can be found on the NAISM website and limitations to data quality have been detailed in previous reports [6].

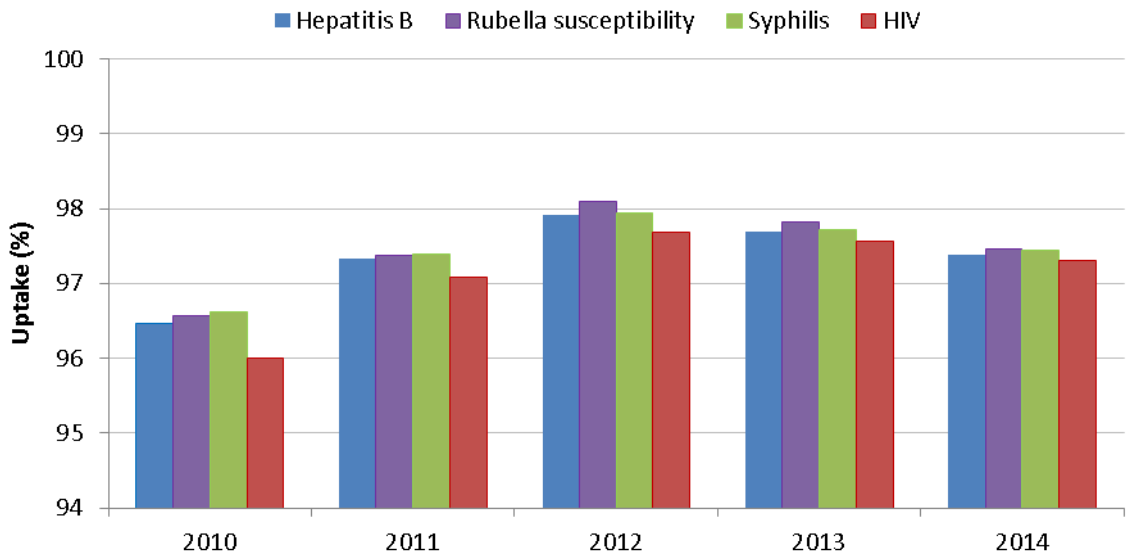
Uptake of antenatal screening is calculated as the proportion of women booked for antenatal care who have a screening test, as reported by maternity services. This is not matched cohort data. The number of maternity units able to report booking data has increased steadily and significantly from less than half in 2010 to 99% in 2014. This may be due to the requirement to collate matched cohort data for screening coverage key performance indicators. As part of the data processing, data exclusions and adjustments were made, mainly when the denominator, numerator or both were unavailable or when the screening uptake for a particular infection was over 110%.

In the minority of cases where maternity unit booking data were not available, a proxy was used such as the number of laboratory tests for syphilis or rubella, under the assumption that most booked women are screened for these infections. Use of these proxy data would lead to an overestimate of the uptake of screening as not all women who are offered screening choose to accept.

Uptake of antenatal screening

Screening uptake for all four infections in 2014 was >97% and has been consistently high, >95% since 2010. A small but statistically insignificant decrease was observed in 2014. It is possible however that this may be due to fluctuations in data provision or quality rather than a true decrease in the uptake of antenatal screening for infectious diseases and we will continue to monitor this. Reported rates of women declining antenatal screening were low. In 2014 in England 0.08% of women offered testing for hepatitis B and HIV declined the offer of screening (535/650,582 and 538/654,848 respectively).

Figure 1. National reported uptake of antenatal screening by infection in England: 2010-2014*.



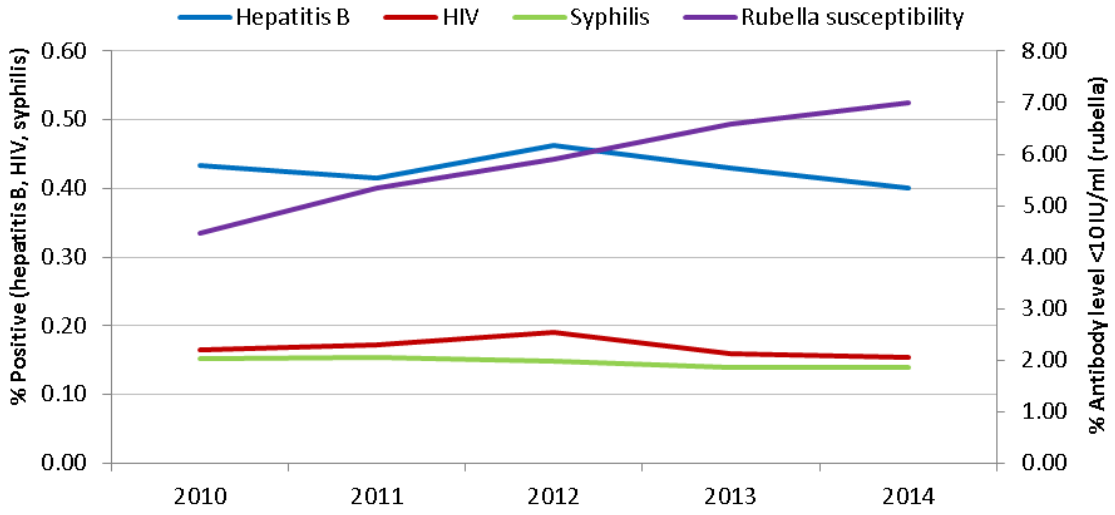
* In 2011 a change in the way denominator data were collected was introduced improving the accuracy and consistency of the estimates from then on.

Pregnant women screening positive for HIV and hepatitis B

The Infectious Diseases in Pregnancy Screening Programme Standards (2010) [4], which came into effect in April 2011, state that screening for hepatitis B or HIV is not required where a prior positive diagnosis of HIV or hepatitis B is documented and known to the healthcare professional. Both newly and previously diagnosed women should be promptly referred for specialist care and clinical evaluation. In 2011, in line with the new standards, a new data collection form was introduced which requested the number of women not screened as a result of prior diagnosis. Some maternity units could not supply information on previously diagnosed women and, therefore, data from these units were excluded from the newly diagnosed calculations.

In 2014, all maternity units provided data on women who were newly diagnosed, those previously diagnosed but rescreened, and those not screened because they were previously diagnosed. For details on how positivity rates are calculated (see appendix 1).

Figure 2: Percentage of pregnant women positive for hepatitis B, HIV or syphilis or with a rubella antibody level <10 IU/ml, in England: 2010-2014.



In England in 2014, 0.15% (1,018/693,570) of pregnant women screened positive for HIV a rate that has remained stable over the last five years (figure 2/table 1).

The proportion of women screening positive for hepatitis B was 0.40% (2,756/681,260) in 2014. Similar to HIV, the rate of women screening positive for hepatitis B has remained relatively stable over the last five years. For both infections, regional variation was apparent, with women in London presenting the highest positivity rates.

The IDPS Programme has commissioned a national audit of practice regarding management of hepatitis B in pregnancy over a 12 month period. It will highlight aspects of service provision requiring improvement, in order to optimise current strategies for the prevention of vertically-acquired hepatitis B and to inform future service planning [7]. The audit is currently collating pregnancy outcome data and is also collaborating with the PHE Immunisation and Blood Borne Virus teams to establish a follow on study on the neonatal hepatitis B Immunisation schedule and one year serology outcomes. The audits will report to the IDPS Programme and support the ongoing review of the screening and immunisation programmes.

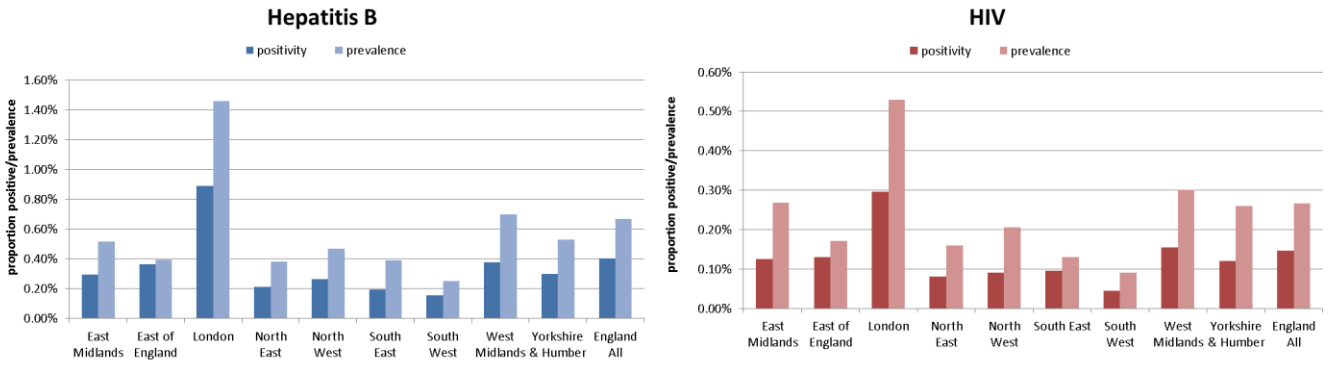
Overall diagnosed prevalence of HIV and hepatitis B

Overall diagnosed prevalence is the rate of diagnosed infection among women attending antenatal care and includes women who were previously diagnosed and not re-tested, previously diagnosed and re-

tested and newly diagnosed women. This is a measure of the burden of infection within the population of pregnant women in England.

Prevalence of hepatitis B and HIV were 0.67% (4,572/682,988) and 0.27% (1,846/694,402) in 2014 respectively. Similar patterns of geographical distribution were observed with prevalence being highest in London, West Midlands, Yorkshire and Humber and East Midlands for both infections (see figure 3).

Figure 3. Positivity and prevalence of hepatitis B and HIV in women in antenatal care by region: 2014.



Women newly diagnosed through antenatal screening

Figures 4a and 4b present the percentage of screened women who were newly diagnosed with hepatitis B and HIV during the three years for which we have complete data. In 2014, 32% (948/2,979) of diagnosed hepatitis B positive women and 22% (257/1,171) of diagnosed HIV-positive women were reported to have been identified as a result of antenatal screening in their current pregnancy. Data from the National Study of HIV in Pregnancy and Childhood suggest the proportion may be even lower at around 15%, dropping from a high of about 60% diagnosed antenatally in the early years following the introduction of the universal offer [8]. Since antenatal screening for HIV was introduced the proportion of positive women diagnosed through antenatal screening in their current pregnancy has decreased. This may be largely explained by the fact that the number of positive women having repeat pregnancies has increased and the prevalence of HIV in pregnant women overall has stabilised [9,10].These data demonstrate that despite the majority of women now being diagnosed prior to their pregnancy, antenatal screening remains crucial in protecting the health of women and their infants.

Figure 4a. Percentage of pregnant women newly and previously diagnosed with HepB,

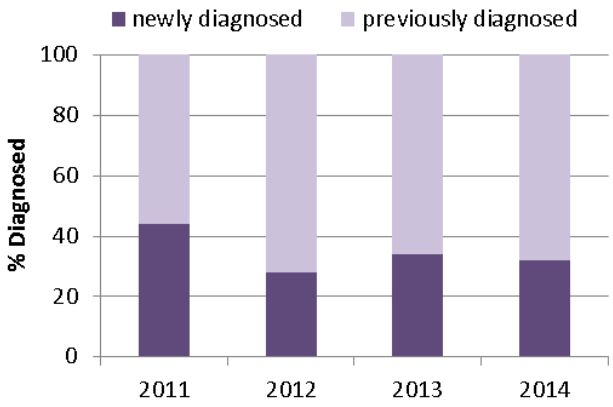
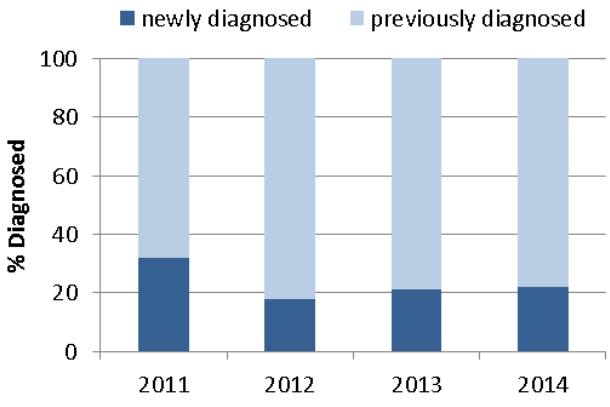


Figure 4b. Percentage of pregnant women newly and previously diagnosed with HIV,



Syphilis Positivity/Prevalence

In 2014 0.14% (971/709,204) of woman were reported screen positive for syphilis (table 1) a rate that has remained stable since 2010 (Figure 2). The Antenatal Syphilis Screening Study (SASS) was funded by the IDPS Programme to provide evidence to improve current screening practice, by establishing what proportion of women identified at antenatal screening in 2010-2011 required treatment to reduce the risk of transmitting syphilis to their babies, how they were managed, and what happened to their babies. The study showed that 20% of the women with screen positive results were subsequently classified as other treponemal infections or false positive results. The report has informed the new IDPS Pathway and Programme Standards and data collection for 2016/17 which will result in more accurate ascertainment of syphilis infectivity status.

Rubella susceptibility

The percentage of women with a rubella antibody level <10 IU/ml continues to increase reaching 6.99% (49,227/704,583) in 2014 (figure 2). However, this trend is unlikely to represent a true increase in susceptibility due to variation in laboratory testing assays and cut-off values used and the difficulty in defining susceptibility [12].

Screening for rubella susceptibility does not meet the UK NSC criteria for a screening programme. The IDPS programme is currently working collaboratively with the PHE Immunisation team, NHS Commissioning and the Department of Health to plan the cessation of antenatal screening for rubella susceptibility (date pending). The present arrangements for antenatal screening and post-partum MMR immunisation by maternity services and primary care will continue until formal notification from PHE.

Conclusion

Uptake of antenatal screening for hepatitis B, HIV, syphilis, and susceptibility to rubella infection in England remains high, well above the original 90% target.

The proportion of screened women who tested positive for hepatitis B, HIV and syphilis has been stable over the past five years whilst there has been an increase in the rate of pregnant women with a rubella antibody level <10 IU/ml. Screening for infectious diseases in pregnancy remains a vital component of antenatal care and continues to play a key role in preventing mother to child transmission of HIV, hepatitis B and syphilis.

The IDPS and NAISM programmes continue to work collaboratively as part of Public Health England to improve future data quality, streamlining collection and reporting for all stakeholders.

Acknowledgements

We would like to thank the maternity units and Trusts, particularly the Antenatal & Newborn Screening Coordinators and Field Epidemiology Teams for their contributions to data collection and the Infectious Diseases in Screening Programme for the on-going collaboration.

For further information on the IDPS Programme can be found on https://www.gov.uk/topic/population-screening-programmes/infectious-diseases-in-pregnancy or by signing up for screening updates via the PHE blog https://phescreening.blog.gov.uk/

Table 1. Percentage of pregnant women screening positive for hepatitis B, HIV, syphilis or with a rubella antibody level <10 IU/ml, in England: 2013.

	Hepatitis B			HIV			Syphilis		Rubella antibody level <10 IU/ml	
	% positive	# screened positive & newly diagnosed/ number screened	% newly diagnosed	% positive	# screened positive & newly diagnosed/ number screened	% newly diagnosed	% positive	# screened positive & newly diagnosed/ number screened	% antibody level <10 IU/ml	# screened positive & newly diagnosed/ number screened
East Midlands	0.29	116/39,388	0.07	0.12	49/39,356	0.02	0.15	59/39,383	4.94	1,951/39,488
East of England	0.37	306/83,524	0.15	0.13	112/86,175	0.05	0.11	98/89,975	4.46	4,011/90,002
London	0.89	1,280/143,513	0.32	0.30	431/145,935	0.06	0.26	374/144,761	6.46	9,120/141,071
North East	0.21	63/29,828	0.04	0.08	24/29,951	0.02	0.25	74/30,017	7.24	2,172/29,990
North West	0.26	208/78,983	0.11	0.09	78/85,771	0.03	0.08	73/93,602	6.40	5,976/93,430
South East	0.20	211/107,431	0.10	0.09	102/107,390	0.02	0.06	65/107,435	8.61	9,248/107,446
South West	0.15	87/56,293	0.06	0.04	25/56,255	0.01	0.04	25/56,296	6.33	3,571/56,404
West Midlands	0.38	275/72,668	0.06	0.16	114/73,339	0.02	0.16	123/78,232	9.07	6,977/76,957
Yorkshire & the Humber	0.30	210/69,632	0.07	0.12	83/69,398	0.01	0.12	80/69,503	8.88	6,201/69,795
National	**0.40**	**2,756/681,260**	**0.14**	**0.15**	**1,018/693,570**	**0.03**	**0.14**	**971/709,204**	**6.99**	**49,227/704,583**

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Appendix 1

The positivity rate is calculated using the following equation:

$$\% \text{ positive} = \frac{\#\text{newly diagnosed} + \#\text{previously diagnosed (rescreened)}}{\#\text{screened}} * 100$$

The positivity is therefore measuring the proportion of pregnant women who tested positive on screening during this pregnancy.

The percentage of women newly diagnosed is presented separately, and only takes into account women who are screened during this pregnancy, as presented in the following equation:

$$\% \text{ newly diagnosed} = \frac{\#\text{newly diagnosed}}{\#\text{screened} - \text{previously diagnosed}} * 100$$