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HIV-STIs

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].

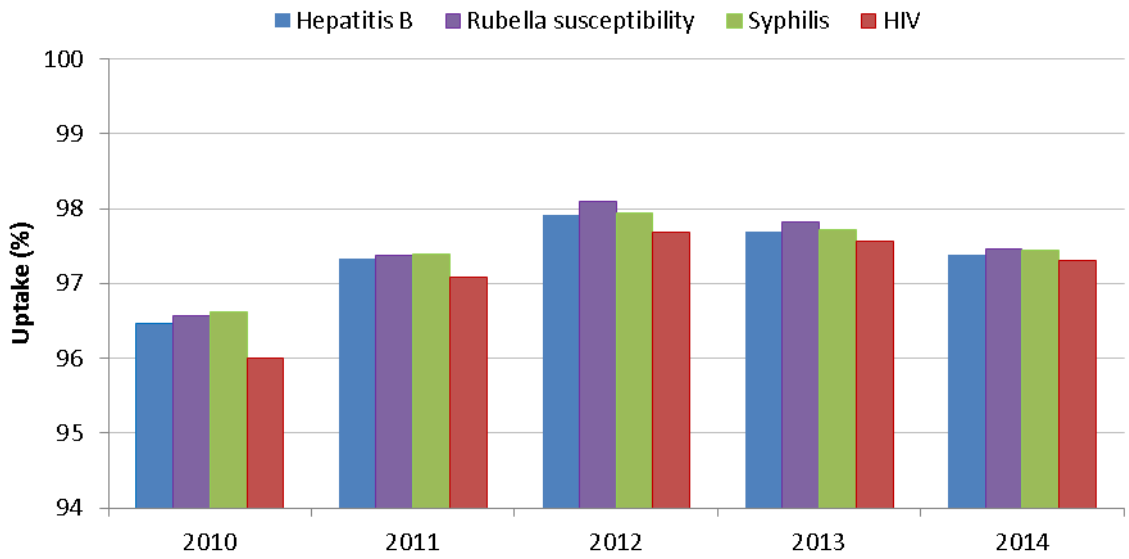
Uptake of antenatal screening is calculated as the proportion of women booked for antenatal care who have a screening test, as reported by maternity services. This is not matched cohort data. The number of maternity units able to report booking data has increased steadily and significantly from less 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*.



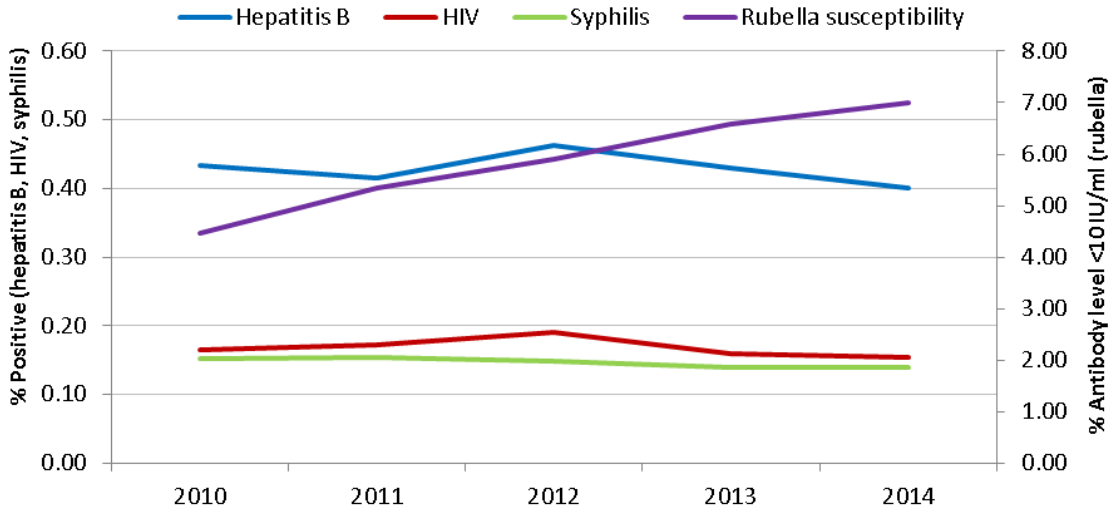
* In 2011 a change in the way denominator data were collected was introduced improving the accuracy and consistency of the estimates from then on.

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.

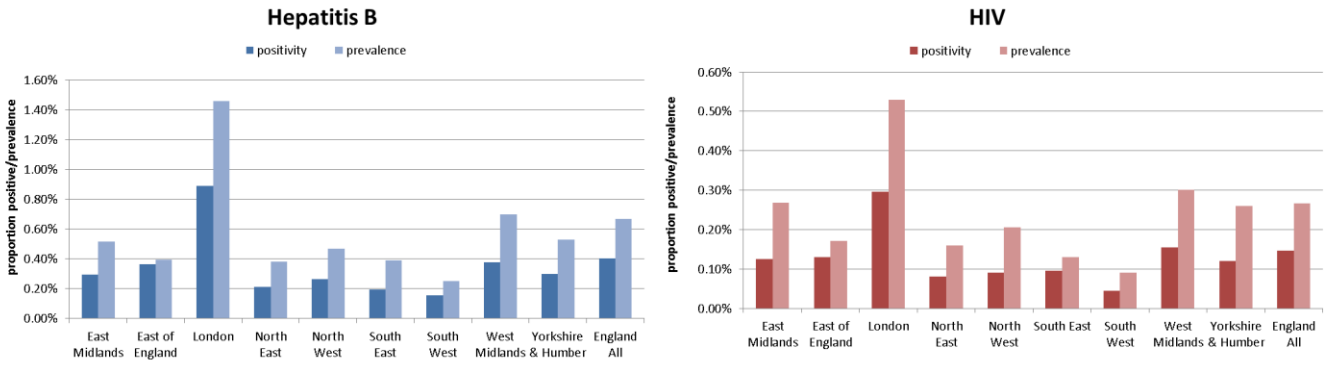
Overall diagnosed prevalence of HIV and hepatitis B

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,

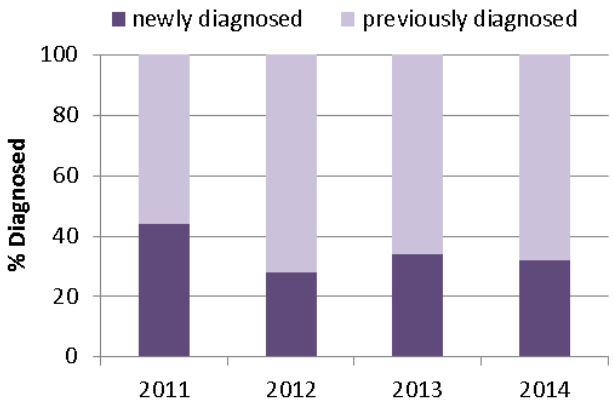
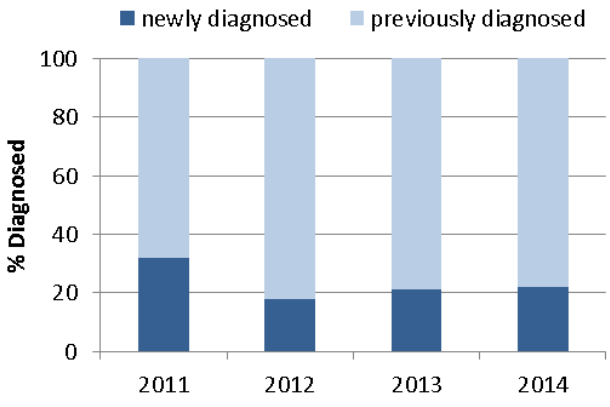


Figure 4b. Percentage of pregnant women newly and previously diagnosed with HIV,



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:

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