Public Health England

Minutes

Title of meeting	6th meeting of the National Strategy Group for Viral Hepatitis (NSGVH)
Date	30 April 2019
Time	10.30 to 16:00
Venue **Teleconference details**	LG26/27 Wellington House, 133-155 Waterloo Road, London SE1 8UG → Join Skype Meeting +44 208 495 3300 VoIP Ext 53300 Conference ID: 3769072
Attendees	Will Irving (Chair) Mary Ramsay (Deputy Chair) Mike Gent (PHE) Sarah Hart (Haringey) Geoff Dusheiko (PHE) Iain Brew (Care UK) Helen Bennett (NHS England) Stuart Smith (Hepatitis C Trust) Rachel Halford (Hepatitis C Trust) Peter Vickerman (Bristol University) Matt Hickman (Bristol University) Giri Shankar (Public Health Wales) Sema Mandal (PHE) Helen Harris (PHE) Dan Bradshaw (PHE) Richard Tedder (Imperial) Samreen Ijaz (PHE) Ross Harris (PHE) Koye Balogun (PHE) Graham Foster (Queen Mary University of London) Rachel Roche (PHE) Ruth Simmons (PHE) Graham Spearing (NHS Digital) Sharon Webb (PHE) Steve Taylor (PHE)
Dialed in	Noel Craine (Public Health Wales) Sharon Hutchinson (NHS Scotland) David Goldberg (NHS Scotland) James Nelson-Smith (PHE – for HES data item) Iain Hayden (PHE) Tatiana Garcia Vilaplanas (PHE) Charlotte Flynn (SpR)
Apologies	Blake Dark (NHS England)

	Peter Moss (Hull and East Yorkshire Hospitals) Eamonn O'Moore (PHE) Daniela De Angelis (University of Cambridge) Graham Cooke (Imperial College London) Ahmed ElSharkawy (University Hospitals, Birmingham) Jackie Kemp (NHS England) Gillian Armstrong (DoH NI)

1. Chair's welcome and apologies for absence

Conflicts of interest – none raised

2. Minutes and actions from the previous meeting

2.1 The minutes of the previous meeting were agreed as an accurate record.

2.2 Actions from the previous meeting:

Action 4.1: Begin work on collating existing awareness raising resources.
This will be covered in item 10 of the agenda.

Action 5.1: Draft letter of support to NHS Digital regarding HES data loss.
Done and Graham Spearing from NHS D will be attending, item 4.1

Acton 6.1: Let Hep C Trust know when ODNs are sending letters out to patients.
Re-engagement exercise will be discussed in item 5.

Action 9.1: Share email from PHE Comms on why resistance testing report was thought not suitable for publication on gov.uk
This issue has been resolved and the guidance is now on the PHE website.

Action 10.1: Share final case-finding evidence report with NSGVH members.
Outstanding, will be sent after meeting.

Action 11.1: Email Rachel Roche with any suggestions for research so a list can be circulated to agree priorities.
None received.

Action 11.2 Share suggested research questions in prisons.
None received.

3. Update from PHE (public health lab and epi) on other hepatitis viruses' priority issues

3.2 HEV (Samreen Ijaz):

- 2017 saw first drop in HEV acute cases since 2010 (2015 – 1212 cases, 2016 – 1243 cases, 2017 – 911 cases, 2018 – 994 cases)
- 2018 data shows numbers beginning to plateau, with similar reports from Europe and trend also reflected in blood donors (1:4000 HEV RNA positive donations end of 2018)
- Small numbers of chronic cases are coming through, also seeing more relapse cases, continuing to monitor these

- Discussions with Defra and FSA about HEV control are in early stages

Discussion:
- Currently no coordination of treatment of chronic cases with novel therapies, discussed whether this could be improved and data collated, it has been difficult to engage hepatologists

Action (Samreen Ijaz and Geoff Dusheiko): Discuss opportunities for getting clinical buy-in
Action (Will Irving): Ask BVHG if there is a way of coordinating data

3.1 HAV (Mary Ramsay)
- MSM outbreak across Europe is now closed, control was difficult as there was no straightforward commissioning and a shortage of vaccine
- There are ongoing questions about vaccine commissioning for MSM, now recommended in BASHH guidelines and sexual health spec but still working out which clinics have it in their contract
- Vaccine supply has improved, and PHE have stock left over from during the shortages which has been used to support household contact post-exposure vaccination and local outbreak response but when this expires it may be difficult for CCGs to buy vaccine to deal with local outbreaks

4. Monitoring data

4.1 HES data issues

Helen Harris introduced the issue:
- Hepatitis C codes in the Hospital Episode Statistics (HES) dataset had identifying information stripped in error, so cases can no longer be linked over time and incidence of hepatitis C-related HCC and ESLD can no longer be monitored.

Graham Spearing outlined the NHS Digital (NHSD) response:
- 11,103 records have been incorrectly anonymised, 88 of 387 providers are affected and a list can be provided; about a quarter of the records relate to 3 organisations
- A refreshed legally-restricted code list is expected to come in in July
- NHSD are working to compile a contact list of affected organisations and preparing a comms message before proactively contacting organisations
- Different ways of asking for re-submitting the data are being considered, either resubmitting records into the secondary uses service (SUS, the source of HES), or asking for a bespoke query so that organisations retrieve specific records
- Either way, the data will be collated to be used separately from HES

Discussion:
- There is a need for certainty that providers have stopped anonymising the incorrect codes, to be sure that there is just fixed term damage that needs to be repaired rather than ongoing data loss. Graham Spearing stated that this will be confirmed as part of the process of contacting providers
- James Nelson-Smith asked whether the re-submission would apply to all incorrectly added codes, Graham Spearing confirmed that this is just for hepatitis codes at present,

but he supports trying to obtain data from all incorrectly anonymised codes and will take this back to NHSD

- Once the missing data has been retrieved, it will not be updated in HES, so any external users will be left with a gap and may not be aware of this, which is a risk for those attempting to understand the data. Graham Spearing stated he has pushed for a complete refresh, but has met resistance as HES data is frozen as a national statistic, so any changes would require extensive work. A decision will be made once the full number of affected records is known
- James Nelson-Smith raised the wider issue of changes to the restricted codes list – is there a different way these can be dealt with to prevent data loss, for example anonymization by SUS rather than at source? Graham Spearing stated that policy states that anonymization should be done at source, and lessons have been learnt from this consultation process that agreement needs to be sufficiently robust before a new list being released
- Sema Mandal stated that there is a wider conversation ongoing between NHSD and PHE Caldicott Group about the legacy classification of codes as 'sensitive', and thus needing anonymization, and whether this process should be reviewed.

4.2 PWID estimates – planned subgroup meeting (Will Irving)

- There is a proposed subgroup meeting for those involved in estimating PWID population size (University of Liverpool commissioned by PHE) and implications for HCV prevalence estimates and mathematical modelling which will be coordinated by Ross Harris.

ACTION: Ross Harris to arrange data subgroup meeting

5. HCV Case finding and referral

5.1 Re-engagement exercise – update on progress and what data is coming through

Sema Mandal gave an overview of progress:

- Data for 55,000 records was released to ODNs in September to October 2018
- Data validation locally found that some cases had been erroneously submitted to SGSS (that is no record of HCV test in original lab data or anti-HCV or PCR was negative but still reported to SGSS), and some cases had been tested outside the ODN area so records were not available to check in local labs – to address this, data was supplemented with additional fields, including lab of first diagnosis and lab of most recent diagnosis from SGSS, and a flag if these were in a different ODN to where the patient was currently residing. Any patient with an HCV diagnostic code that was also found in a different surveillance dataset was also flagged (>80% of patients)
- New list with these additions sent out in February 2019
- PHE Field Services have begun to support ODNs in liaising with labs, investigating data issues and facilitating contact and data validation for patients tested outside ODN area
- PHE evaluation of reengagement exercise is ongoing; domains addressed today are ODN baseline situation (structured interview), and data quality and utility (spreadsheet), ultimate outcome of whether patients were contacted and reengaged is available in treatment dataset

Ruth Simmons outlined data returned from ODNs about results of local checks:

- Feb 2019 dataset contained additional fields asking about ODNs local checks and their outcomes, 4 submissions returned so far; one south ODN, one north ODN and 2 London ODNs
- Classified patients by: nothing reported from clinic (nothing back from ODN about these patients yet); RNA negative; RNA negative treated; no result/record of treatment; RNA positive; other
- Where reported, about 60% of south and north ODN patients were RNA negative (including those negative due to treatment)
- Numbers vary by CCG, again no result/no record of patient is largest group, these patients were likely diagnosed in another ODN so the ODN has no details for them – this is why the additional step of liaising with labs was needed

Discussion:

- If patient status is still unknown after all checks have been done, they should still be contacted and the letters have been drafted to support this, although not all ODNs are currently taking this approach
- There was a question about whether progress had been made in information governance to support data sharing with other organisations who may have data to support finding information on unknown patients; there have been discussions with PHE Viral Hepatitis Leads Group about local initiatives, but unclear if any are currently taking place, and these may be difficult now the national precedent has been set

Giri Shankar updated on Wales's reengagement exercise:

- 980 patients met the criteria of PCR positive but no evidence of SVR or being linked to care
- After data cleaning, GPs were provided with a list of their patients, to ask them if there was any reason not to contact the patients
- 320 patients have been contacted, with 10 now in treatment
- Biggest challenge has been getting reply from GPs, decision now is to write to patients anyway if GPs do not respond by deadline
- Overall reception has been positive, a couple of patients were upset at being contacted when they had previously cleared the infection

Charlotte Flynn outlined results of the ODN baseline survey:

- Conducted interviews with 18 ODNs to ask them about resources, data management, and prior and current work to re-engage patients
- Resources in ODNs to work on re-engagement are highly variable, and there are different levels of leadership and involvement of senior members of the ODN in the exercise
- Many ODNs are awaiting the outcome of the tender process before planning the next stage of the re-engagement exercise
- Data management expectations varied across different ODNs; all commented on resource intensiveness of the exercise, but had positive outcomes in terms of finding patients and linking them to treatment
- Access to laboratory data was very different across ODN areas, dependent on architecture of local systems
- In general, 30 to 50% of PHE anti-HCV positive cases are PCR negative locally due to spontaneous clearance or treatment

- Prior and current work to re-engage patients was hugely varied and took place in a range of settings including pharmacies, drug and alcohol services, GP surgeries
- ODN contact with GPs and patients was mostly via letter, some by phone
- There were differing levels of response from GPs, and some ODNs put in place processes to define 'untraceable outcome'
- Resource is a major issue, particularly outside of ODN hubs
- Interviewees supported moving away from only anti-HCV testing and the need for a national awareness campaign
- Support was needed about how to encourage compliance and adherence to treatment for some patients
- There are still misunderstandings about PHE lab diagnosis data and how this is being used in prevalence estimates and run rates, these will be clarified in the report which goes back to ODNs

6. National Treatment Database and HCV in England 2019 Report

6.1 Treatment monitoring – update on the Arden and GEM database (data and developments) (Will Irving)

- Advisory group (Hep C Reporting Group) for the database was being re-formed to extend membership, and terms of reference are being updated; nothing heard on this for a while as recent meetings have been cancelled.

Action (Helen Bennett): ask within NHSE about developments for the Hep C Reporting Group and feed back

6.2 Recommendations from the HCV in England 2019 report

Carried forward to next meeting due to time constraints

- Helen Harris briefly covered key concerns for monitoring elimination: while progress reducing HCV-related mortality has been excellent, data currently show no evidence of an impact on reducing incidence (new HCV infections), and there is no national monitoring of NSP provision or the proportion of PWID receiving oral substitution therapy.

Action (all): consider Public Health Recommendations listed at the front of the report and contact Helen Harris if there are areas where they can help make progress outside of the meeting

Action (Ross Harris): as outlined in action 4.2, Ross Harris will form a data subgroup where data issues for monitoring elimination can be discussed

7. Procurement (Graham Foster)

- This will be signed off next week, final plan will be presented to networks on 16 May
- Everything discussed below has not been signed off, so is confidential and may change
- Strategy is to eliminate HCV within next 3 to 4 years, unlikely to be continued investment in HCV beyond that
- No clear guidance on what 80% reduction means, or how this will be measured
- Year one is data collection to decide what to do and where to invest in years 2 to 3
- Each network will be given significant additional resource and additional capacity to test
- Working out how to address concern that drug services may stop testing if seen as ODN responsibility
- Cross-cutting themes will allow investment in target areas, top priority is prisons

- Plans for year one include whole-prison clearance of virus on a prison-by-prison basis, increased testing and case-finding in GPs, testing in pharmacies, and significant infrastructure investments in drug services with support for management and extra testing
- NHSE intend to create a testing registry to record tests conducted through the procurement exercise

Discussion:
- Variable commissioning arrangements add complexity. Examples from good regions and reporting on progress could help motivate local commissioners.
- The importance of monitoring elimination once achieved to identify any resurgence quickly, and the need to monitor reinfection was raised. It is hoped that in the next few years, data from prisons will help to provide reinfection data.
- There was discussion of whether and how the proposed NHSE testing registry can be tied in to existing PHE surveillance systems rather than setting up a separate data collection. PHE has infrastructure, NHSE has short time scale to get things up and running. There is a need to get together to work out how a joint system can work.
- Discussion of NHSE meeting with ODNs on 16 May and whether PHE can attend. This will be a difficult meeting as the first time ODNs have heard about the details, so will be kept a closed meeting.

Action (Geoff Dusheiko and Graham Foster): NHSE and PHE arrange joint meeting about integrating data collection systems

8. Public Awareness Campaign update (Will Irving)
- It was suggested in a previous meeting that pharma may fund this, they will not. Nothing further to report at present.

9.0 Resistance testing (Will Irving)
Covered briefly due to time constraints:
- Data presented from 118 patients who had failed a variety of DAA containing regimens, retreated with one of three retreatment regimens
- 7 failed to clear the virus on retreatment, overall SVR was 94%
- three quarters had resistance mutations, which did not appear to impact on failure of retreatment

10.0 Research agenda (Will Irving)
Covered briefly due to time constraints:
- HepCATT in primary care was highly cost-effective with a modest effect
- Birth cohort screening may be cost-effective if done alongside NHS health checks
- There is now a need for support for pilot implementation of both these interventions
- Implementation beyond pilots is likely to be difficult

11.0 WHO global elimination targets for hepatitis B (HBV) (Sema Mandal)
Sema Mandal gave a perspective on elimination strategy for HBV, where we are in the UK now:

- WHO global health sector strategy goal is elimination of HBV as a public health threat by 2030 with overarching goals of 90% reduction in chronic infection and 65% reduction in deaths
- Action plan for Europe includes interim targets as well as final goals
- UK has already met 2020 targets for childhood vaccine coverage, preventing mother to child transmission and blood safety
- Challenges for monitoring harm reduction and safe injections
- Issues remain about percentage of chronic HBV diagnosed, and percentage treated
- Action plan has two main areas: information for focused action, and interventions for impact
- Data milestones for 2018 are harmonised surveillance objectives and case definitions aligned (met); national disease burden estimate (in progress), targets for 2020 are a national hepatitis infection surveillance programme (already in place), and real time tracking of the viral hepatitis diagnosis, treatment and care cascade (in progress)
- Communication and awareness milestones for 2018 are to mark World Hepatitis Day nationally (met); targets for 2020 are to have a national viral hepatitis communication and awareness strategy (aiming to develop this, currently no overarching strategy)
- National evidence based planning milestone for 2018 is to have a costed and funded national hepatitis plan with clear targets on viral hepatitis (not in place, but NSGVH provides strategic input)
- Immunisation of infant and high risk groups 2018 milestones are 90% coverage of 3 doses of childhood vaccine (met) and national guidelines on HBV vaccinations for high-risk groups to be developed and implemented (met), targets for 2020 are on the way to being met; 95% coverage of 3 doses of childhood vaccine (met), ≤0.5% HBsAg prevalence in vaccinated cohorts (lacking vaccine coverage data, but achieved in some groups), 80% of health care workers vaccinated against HBV (lacking coverage data, but likely to be good as policies are strict)
    - Several different high risk groups are recommended for selective immunisation by PHE, and recommendations are in the Green Book. Most also align with other guidelines such as NICE, BASHH, BHIVA. Commissioning of vaccination programmes varies a lot, and only post-exposure vaccination of babies born to HBV-positive mothers is commissioned by NHSE through S7A agreement, with others reliant on locally commissioned contracts
- Prevention of mother-child transmission 2018 milestones and 2020 targets all met; 90% screening coverage in pregnant women, 95% coverage of post-exposure prophylaxis in infants born to infected mothers. Data on mother-child transmission includes infectious diseases in pregnancy programme standards data, which shows 99.6% uptake of antenatal screening, 80% attending specialist assessment within 6 weeks, 98.4% of infants receiving birth dose of vaccine within 24 hours
- Blood and tissue safety 2018 milestones and 2020 targets all met; haemovigilance systems in place, all donated blood screened with nucleic acid testing methods for HBV, and all blood comes from non-remunerated donors. Blood donation screening found 63 HBV infections in 2017 so continued vigilance is needed
- Infection safety and infection control and prevention 2018 milestones and 2020 targets all met; there may not be data to demonstrate this fully, but surveillance data does not indicate any concern about injection safety in healthcare settings. In non-healthcare

settings, there is concern about non-regulated tattoos and cosmetic facilities, guidance from HSE and PHE about this is available

- Preventing HBV transmission associated with drug use 2018 milestones and targets are similar to those for HCV; policies are in place, but implementation and delivery is difficult to monitor. These include provision of at least 200 syringes per PWID per year, and at least 40% of opioid-dependent PWID receiving OST. Data on proportion of PWID reporting adequate needle and syringe coverage is available from UAM. Uptake of HBV vaccine among PWID is available from UAM and 90% target is not being achieved, data is self-reported and does not give dose information, more work needed to monitor this.
- Preventing sexual transmission 2018 milestone of providing sexual health services met, 2020 target of all individuals having access to full range of sexual health services met, but definition is woolly. Vaccine uptake in MSM is available through GUMCAD but there are data quality issues which are being worked on; audit data show variable uptake between clinics, difficult to monitor subsequent doses unless they are all done in the same clinic
- Diagnosing HBV infection 2018 milestones high quality viral hepatitis testing and diagnosis services available to all (met), testing guidelines in place (met), estimates of the diagnosis rate and the proportion of patients diagnosed at late stage of viral hepatitis-related liver disease (currently unknown), all healthcare workers to know their hepatitis B serostatus (not fully monitored, but implemented through occupational health and DH policies), 2020 targets: 50% of all people with chronic HBV to be diagnosed (currently unknown), 75% of the estimated number of patients at late stage of viral hepatitis-related liver disease to be diagnosed (currently unknown)
    - EMPACT-B paper describes nurse-led service to help navigate services and get patients referred, and help get contacts identified, tested and vaccinated. Intervention led to increased referrals and identification of cases among contacts
    - Pilot of using dried blood spot testing to test household contacts of pregnant women identified with HBV led to increased testing and referral and identification of cases among contacts
- Enhancing chronic hepatitis care and treatment 2018 milestones national hepatitis treatment and care guidelines and protocols established and updated in line with WHO guidelines (met), baseline estimation of people who need treatment for chronic HBV infection (not met), 2020 targets: treatment for chronic HBV infection available and affordable for all (met), 90% of patients diagnosed with chronic HBV to be linked to care and adequately monitored (unknown), 75% of patients diagnosed with chronic HBV and eligible for treatment to begin treatment and among those on long-term treatment, 90% to obtain viral suppression (not met)
- Hepatitis B cascade of care although done for HCV, this is more difficult for HBV as PHE don't have data on DNA testing (as proxy for secondary care referral) for majority of patients and treatment eligibility and monitoring is based on combination of markers and DNA. There is currently no treatment registry for HBV and no opportunities to monitor viral suppression.

Geoff Dusheiko gave an overview of the care cascade:

- There is fairly good data at one end of the spectrum, preventing incident chronic infection through the universal infant vaccination programme, and the metric of ≤0.5% HBsAg prevalence in this cohort will demonstrate this

- At the other end of the spectrum there is some data from transplant units about HBV-related ESLD and HCC, but there is concern about the accuracy of this data
- In between is the care cascade, and the field is changing – currently nucleoside analogue suppression is used, and most individuals will have very low or undetectable HBV DNA, but some individuals with cirrhosis will still get HCC so are under regular surveillance. There are new targets for HBV cure and about 10 capsid assembly modulator drugs, which affect the assembly of the HBV capsid and lead to even lower levels of DNA, in phase 1 and 2 trials. It is currently unknown whether there will be willingness to pay for these drugs and what their impact will be.
- It could be worth considering as a strategy group whether we need to know numbers living with HBV and what proportion are on suppressive therapies and have undetectable DNA. An interface with clinicians would be needed to do this, and a consideration of how this would be developed and funded.

Sema Mandal summarised challenges that should be focussed on:
- disease estimates
- characterising infected population
- monitoring treatment and care

Discussion:
- HBV is still clinically important, there is a wide array of different presentations of the disease and the impact of new therapies is interesting
- Little is known about treatment of pregnant mothers and its impact on transmission to infants
- Prevalence estimates will be available soon
- There is a question about what is happening about case-finding as this is not happening despite recommendations
- There is a need for better recording of country of origin on GP systems to support screening in primary care
- Not all cases of HBV need to be seen, so it is more difficult to assess what proportion of those that need to be seen are seen by secondary care

12. Monitoring data for HBV (Koye Balogun)

Koye Balogun presented an overview of monitoring data for HBV in the UK:
- Prevalence of chronic HBV infection varies globally; high (≥8%) prevalence areas include Arctic rim, Amazon basin, sub-Saharan Africa and far east, intermediate (2-7%) prevalence areas include Amazon basin, sub-Saharan Africa, former Soviet states, low (<2%) prevalence areas are North America, Western Europe and UK

In the UK:
- Estimated 180,000 people infected with HBV, with prevalence ranging from 0.3 to 0.4% and incidence of one per 100,000 population (England)
- Diverse distribution of risk, important factors are country of birth, ethnicity and adult risk factors such as injecting drug use, with mother to child transmission the most important route
- Incidence of acute HBV is higher in ethnic minority residents and in males, and peaked in the 1980s and now stable and declining, clusters are still seen due to sexual transmission

- Risk factors associated with acute infection are usually not reported, where recorded the most common risk is sexual transmission
- Data from sentinel surveillance shows around 150,000 to 160,000 cases per year tested for HBV, proportion HBsAg positive has declined over past 5 years
- UAM data shows anti-HBc prevalence in PWID declined between 1996 and 2016
- Health and Justice Indicators of Performance (HJIPs) show an increase in testing in prisons from 4% to 28% after the introduction of opt-out testing
- CUSHI-B study looked at chronically HBV-infected patients across the UK to characterise diversity in genetics and genotype – but done 10 years ago
    - 80% of patients were born outside the UK, main genotypes seen were A, B, C, D and E
    - There was an association between genotype and region of origin, with a diverse genotype pool
- Current prevention policies include blood donor screening, selective immunisation of high-risk groups, universal antenatal screening for HBsAg, universal infant immunisation with hexavalent vaccine since August 2017
- Most infections found in blood donors are chronic, with a very small proportion of acute and occult infections
- DBS testing of high-risk infants at 12 months has increased, and prevalence in this group has remained low
- Burden of HBV-related ESLD/HCC has increased between 2003 and 2016, and HBV-associated liver transplants have also increased
- Deaths from HBV have been stable over the past two decades
- Future challenges include estimating the prevalence of chronic HBV, case-finding, referral and treatment/care in view of potential advances in treatments

13 Update on national antenatal screening and neonatal immunisation pathway project (Sharon Webb)

Sharon Webb gave an overview of the work of PHE Infectious Diseases in Pregnancy Screening (IDPS) programme to develop the enhanced pathway which stems from the introduction of the hexavalent infant vaccine into the UK programme in 2017:

- Collaborative working with an internal project group and an external stakeholder group including hepatologists, screening and imms teams, laboratories, virology, commissioners, and Royal College of Nursing
- Aiming to get services for HBV-infected mothers up to the gold standard achieved for HIV
- Extensive stakeholder engagement
- Key areas of work are improved surveillance, increased public awareness, improved professional awareness and knowledge, increasing multidisciplinary working to match the model already in place for HIV
- Rationale for the enhanced pathway comes from evidence of poor practice and incidents, and equality issues relating to the patients at risk
- New screening and immunisation guidance is needed, as previous guidance is out of date
- Resources have been produced for enhanced pathway: IDPS screen positive leaflet, safety checklist, prepaid serology packages, notification letter templates, PHE

vaccination leaflet, delivery suite ‘HBIG’ box, red book inserts, primary care aide memoire

- An e-learning package was commissioned through the project which will be mandatory for all professionals screening women through the pathway – key message is the importance of handing over the baton along the pathway
- Generic and higher- and lower-infectivity pathways have been developed
- Key messages: care needs to be coordinated, need to work out who orders the HBIG and where it is stored, third trimester review is important to individualise care
- Screening outcomes will be monitored by the Institute of Child Health, who will be notified of any HIV, HBV or syphilis positive pregnant mother and follow them through the system
- Any child born with HIV, HBV or syphilis will have a confidential case enquiry which will help to inform how screening and clinical care are offered
- Planning new governance arrangements for the IDPS, for HBV these will be planned in year 2 and rolled out in year 3
- Data on screening activity uses matched cohort data. Report is about to be published, with second year’s data currently under analysis; 3.8 per 1,000 women screened positive for HBV, uptake of screening is high, linkage to care is poor, but proportion of high infectivity women with a specialist assessment within 6 weeks has improved, 98.4% of babies requiring HBV vaccination received first dose within 24 hours and 93.3% of babies requiring HBIG received it within 24 hours, reasons for these being missed are being addressed by the group

14.0 HBV mother to child transmission (Samreen Ijaz)

Samreen Ijaz gave an overview of work done over many years following up infants born to HBV-infected mothers, focusing on the laboratory aspects of the surveillance programme:

- Outcomes for babies born to ‘high-risk’ mothers (HBeAg positive and high viral load)
- Laboratory tests for HBsAg and anti-HBc at 12 months, with additional molecular characterisation for any HBsAg or anti-HBc reactive samples and where possible matching with virological markers in mother
- Analyte was previously venous samples, briefly oral fluid, now DBS
- Presenting data from 69 HBV-infected babies between 2003 and 2015, all venous testing
- There was a wide distribution of genotypes, high viral load, and about 90% were negative for anti-HBs at 12 months despite having received HBIG and having full course of vaccine – apparent vaccine non-responders. Need to better understand the role of in utero transmission
- Sequencing to investigate vaccine escape mutants shows 50% of babies have wild type virus, 37% have amino acid changes in the major antigenic region within the determinant, 13% have amino acid changes within the surface antigen but outside the major antigenic region. Phenotyping shows a role of altered HBsAg antigenicity in these infections.
- Virological markers in mothers show little evidence of altered HBsAg antigenicity in mothers
- Median viral load in mothers was 1-1.5 $\log_{10}$ higher in mothers that transmitted than those that didn’t
- In utero transmission investigated by testing Guthrie cards (5 days) from infants identified as infected at 12 months, data fell into three categories;

    - 6/23 (26%) were HBV DNA positive on birth spot, with high viral load and identical sequence at birth and 12 months, all wild type viruses and a range of serotypes and genotypes;
    - 10/23 (43%) were HBV DNA negative on birth spot, with sequence at 12 months indicating amino acid changes, mother's virus was predominantly wild type and results indicate selection pressure of HBIG/vaccine, range of genotypes but predominance of ayw serotype (vaccine is adw);
    - 7/23 (30%) were HBV DNA positive on birth spot, with low viral load and unable to sequence the majority. Unknown what this represents and whether they could be very early HBV infections
- Enhanced pathway: from past 10-12 years' data on maternal transmission it is clear we have a good system in place, but there are also gaps which need to be addressed to inform better prevention. Better maternal data are needed to understand the role of antivirals in preventing both perinatal and in utero transmission. Want a better understanding of the role of HBsAg mutants, and better data on in utero transmission.
- Enhanced pathway will include assessment of maternal markers (HBV DNA) at booking and delivery to understand changes in HBV viral load during pregnancy and what influence it has on outcome, and sequencing to characterise the virus. Birth DBS for baby to test for HBV DNA and HBsAg, and comparing this to 12-month sample to understand what influence infection at birth has on outcome at 12 months.

Discussion:

- There is currently no data on threatened miscarriage during pregnancy for infections ascribed to in utero transmission, this will be available once HBV is added to the ISOS system
- Discussion of treatment policy relating to highly viraemic women and whether nucleoside analogue treatment earlier in pregnancy may help prevent transmission. Numbers are very low to produce an evidence base for this, only ~ 3 infected babies a year. Clinical guidelines are varied and complex and hepatologists are doing different things, there is a need to harmonise treatment.
- Care cascade: There is potential to look at the care cascade in sentinel sites by gathering data from hepatologists. Funding could be provided through HPRU. Hepcare software pulls data from the system but needs tweaking. PHE already have data on some aspects of the care cascade; birth registration data linked to HBV data giving information on mothers' country of birth, data linkage to estimate cascade of care, and there have been discussions about getting clinical data but this would need to go through research ethics. NHS prescribing data may also be available.
- Sema Mandal asked whether proposed surveillance under the maternal and infant screening pathway was thought reasonable by the group. There was no opposition to this.

15. Priorities for HBV elimination

15.1 Reviewing priorities and updating spreadsheet

Carried forwards due to time constraints

16. Any other business

None raised