PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HEPATITIS B VIRUS: Guidelines on antiviral prophylaxis in pregnancy

July 2020

Annex D. Acceptability, feasibility, values and preferences of antiviral prophylaxis for HBV-infected pregnant women in addition to timely birth dose vaccination
Prevention of mother-to-child transmission of hepatitis B virus (HBV): guidelines on antiviral prophylaxis in pregnancy. Web Annex D. Acceptability, feasibility, values and preferences of antiviral prophylaxis for HBV-infected pregnant women, in addition to timely birth dose vaccination

ISBN 978-92-4-000865-6 (electronic version)

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This publication forms part of the WHO guideline entitled Prevention of mother-to-child transmission of hepatitis B virus (HBV): guidelines on antiviral prophylaxis in pregnancy. It is being made publicly available for transparency purposes and information, in accordance with the WHO handbook for guideline development, 2nd edition (2014).
Contents
Abbreviations and acronyms ................................................................................................. 2
Background ............................................................................................................................. 3
Objective ................................................................................................................................... 3
Methods .................................................................................................................................. 3
Results ...................................................................................................................................... 4
  Demographics ....................................................................................................................... 4
  Findings and reported challenges ......................................................................................... 6
Key findings ............................................................................................................................... 10
MEDLINE review on knowledge and acceptability of measures to prevent mother to child
transmission of HBV in pregnant women .............................................................................. 11
Objective: ............................................................................................................................... 11
Methods ................................................................................................................................... 11
Results ..................................................................................................................................... 11
Key findings ............................................................................................................................... 12
### Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AMRO</td>
<td>WHO Regional Office for the Americas</td>
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<td>AFRO</td>
<td>WHO Regional Office for Africa</td>
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<td>EMRO</td>
<td>WHO Regional Office for the Eastern Mediterranean</td>
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<td>EURO</td>
<td>WHO Regional Office for Europe</td>
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<td>HBV</td>
<td>hepatitis B virus</td>
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<td>PMTCT</td>
<td>prevention of mother-to-child transmission</td>
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<td>SEARO</td>
<td>WHO Regional Office for South-East Asia</td>
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<td>WPRO</td>
<td>WHO Regional Office for the Western Pacific</td>
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Background
The WHO Global Hepatitis Programme plans to release an update to the 2015 hepatitis B virus (HBV) guidelines section on prevention of mother-to-child transmission (PMTCT) of HBV infection. These guidelines are scheduled for release at the beginning of 2020.

Objective
As part of the evidence retrieval process, WHO developed online consultations for health-care workers caring for pregnant women and country programme managers in order to ascertain the acceptability, feasibility and values and preferences relating to the recommendations that may arise from these guidelines. The findings of these consultations contribute to the evidence base for the recommendations contained in the guidelines.

Methods
Target population
- Consultation 1: health-care workers caring for pregnant women
- Consultation 2: public health programme managers
- Consultation 3: civil society

Data collection
Following consultation with the Guideline Steering Group, three online consultations were designed using the Survey Monkey® online tool. The consultations were piloted in-house and adjustments made accordingly. The consultations were made available in English.

Recruitment methods
Consultation 1: Health-care workers
Members of the Guidelines Development Group and WHO regional advisors agreed to disseminate the consultation within their networks and snowballing was encouraged.

Consultation 2: Programme managers
Programme managers were contacted via WHO regional offices and advisors who disseminated the consultation to programme managers in countries within their region. The consultation was distributed between programme managers from the viral hepatitis programme, programmes to prevent mother-to-child transmission of HIV and syphilis and the Expanded Programme on Immunization.

Consultation 3: Civil society
Members of the Guidelines Development Group and civil society representatives agreed to disseminate the consultation within their networks and snowballing was encouraged.

Data analysis: Question summaries and charts were created by the Survey Monkey® analysis tool.
Results
It was not possible to calculate a response rate for the surveys as the denominator (the number of people to whom the survey was sent) was not available for any of the surveys.

Demographics
In total, 56 programme managers, 81 representatives from civil society and 153 health-care workers responded to the different consultations. There was representation from all WHO regions. A minority of respondents were from the European and the East Mediterranean Region (Fig. 1). Representation according to WHO region is shown in Fig. 1 and the roles of respondents are shown in Fig. 2, 3 and 4.

Fig. 1: WHO region of respondents

Fig. 2: Types of health-care workers who responded to the consultation
Fig. 3: Areas of work of programme managers who responded to the consultation

Fig. 4: Civil society organizations that responded to the consultation
Findings and reported challenges
Respondents were consulted to determine their views on the acceptability and feasibility of a policy to use tenofovir prophylaxis in eligible pregnant women to prevent mother-to-child transmission of HBV infection. Around 30% of respondents in the African Region, 60% in the Region of the Americas, 70% in the South-East Asian Region, 80% in the Western Pacific Region and 100% in the Eastern Mediterranean and European regions reported that they had an established HBV PMTCT programme in their place of work or country.

Advantages of the use of tenofovir prophylaxis in eligible pregnant women to prevent mother-to-child transmission of HBV infection reported were prevention of HBV infection in the infant, reduction in the incidence of HBV infection in the population, care and treatment of the mother, and an opportunity to build on and promote HIV and syphilis PMTCT services (Fig. 5).

Reported disadvantages were costs and concerns about the health of the mother and the infant, and concerns that tenofovir prophylaxis could shift attention and resources away from timely birth dose vaccination (Fig. 6).

Seventy-seven per cent of respondents felt that it is feasible to implement tenofovir prophylaxis in eligible pregnant women. Perceived challenges to implementation were cost and availability of HBV DNA tests and tenofovir, education of health-care workers and women living with HBV infection, and the lack of infrastructure to test and treat pregnant women (Fig. 7).

Fig. 5: Advantages of the use of tenofovir prophylaxis in eligible pregnant women to prevent mother-to-child transmission of HBV infection

- Opportunity to build on HIV and Syphilis PMTCT services
- Care and treatment of the mother
- Reduction of the incidence of HBV infection in the population
- Prevention of HBV infection of the infant

CS: civil society; HCW: health-care worker; PM: programme manager

Fig. 6: Disadvantages of the use of tenofovir prophylaxis in eligible pregnant women to prevent mother-to-child transmission of HBV infection
Respondents were consulted to determine their views on the acceptability and feasibility of a policy to adopt HBeAg testing to determine treatment eligibility in pregnant women to prevent mother-to-child transmission of HBV infection in settings where HBV DNA testing is not available.
Advantages of adopting HBeAg testing to determine treatment eligibility in pregnant women indicated were increased access to HBV testing for pregnant women, reduced costs and increased equity for disadvantaged populations (Fig. 8).

Reported disadvantages and challenges indicated were availability and costs of HBeAg tests, concerns that HBeAg is not precise enough to determine HBV treatment eligibility, concerns about a false perception that HBeAg is a reference method for assessment of treatment eligibility, and a need for education of health-care workers and women living with HBV infection (Fig. 9).

**Fig. 8: Advantages of adopting HBeAg testing to determine treatment eligibility in pregnant women**

![Advantages of adopting HBeAg testing](image)

<table>
<thead>
<tr>
<th>Advantage</th>
<th>CS</th>
<th>PM</th>
<th>HCW</th>
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<tbody>
<tr>
<td>Increased access to HBV testing for pregnant women</td>
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<td></td>
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<tr>
<td>Reduced costs</td>
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<td></td>
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<tr>
<td>Increased equity for disadvantaged populations</td>
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CS: civil society; HCW: health-care worker; PM: programme manager

**Fig. 9: Disadvantages of and implementation challenges to adopting HBeAg testing to determine treatment eligibility in pregnant women**

![Disadvantages of adopting HBeAg testing](image)

<table>
<thead>
<tr>
<th>Challenge</th>
<th>CS</th>
<th>PM</th>
<th>HCW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of HBeAg tests</td>
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</tr>
<tr>
<td>Costs of HBeAg tests</td>
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<td></td>
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<tr>
<td>Concerns about a false perception that HBeAg is a...</td>
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<td></td>
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<tr>
<td>Concerns that HBeAg tests are not precise</td>
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<td></td>
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<tr>
<td>Need for education of health care workers</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Need for education of women living with HBV...</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lack of infrastructure</td>
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CS: civil society; HCW: health-care worker; PM: programme manager
Civil society representatives were asked if routine testing of pregnant women could lead to issues in terms of confidentiality as well as stigma and discrimination. Over 50% of respondents felt that routine testing can lead to confidentiality issues and stigma and discrimination (Fig. 10 and 11).

**Fig. 10:** Could routine testing of pregnant women lead to issues in terms of confidentiality?

![Chart](chart10.png)

CS: civil society; HCW: health-care worker; PM: programme manager

**Fig. 11:** Could routine testing of pregnant women lead to issues in terms of stigma and discrimination?

![Chart](chart11.png)

**Fig. 12:** Reported barriers for women to access PMTCT services
Key findings

- Tenofovir prophylaxis is acceptable and feasible to implement according to the majority of respondents who answered the questionnaires.
- Tenofovir prophylaxis is an opportunity to prevent HBV infection and integrate with and strengthen HIV and syphilis PMTCT services.
- Reported concerns are availability and costs of diagnostics. Therefore, costs, cost–effectiveness and availability of tests will need to be taken into account.
- Other perceived concerns are the safety of the mother and infant. Safety monitoring will need to be provided to address these concerns.
- Confidentiality, stigma and discrimination remain a source of concern when pregnant women are routinely tested. Safeguards will need to be provided to address these issues.
MEDLINE review on knowledge and acceptability of measures to prevent mother-to-child transmission of HBV in pregnant women

Objective
Assess knowledge and acceptability of measures to prevent mother-to-child transmission of HBV.

Methods
**Target population:** pregnant women

**Data collection:** MEDLINE search using terms for HBV infection, mother-to-child transmission, antiviral therapy, patient preferences, patient values, acceptability and knowledge. We will select studies that use consultations/questionnaires to ask participants (pregnant women and health-care workers) to indicate their knowledge and willingness to use interventions to prevent mother-to-child transmission.

**Data analysis:** descriptive review of available survey data.

Results
Three studies were identified that performed a survey in which participants were presented with questions on knowledge of HBV transmission and willingness (acceptability) to use interventions such as timely birth dose and antiviral therapy to prevent mother-to-child transmission of HBV.

The studies are summarized below.

1. **A survey study of pregnant women and health-care practitioners assessing the knowledge, attitudes and practices of hepatitis B management at a teaching hospital in Kumasi, Ghana, West Africa; 2015**

<table>
<thead>
<tr>
<th>Aim</th>
<th>To determine the knowledge base about HBV infection and willingness to implement measures to reduce HBV transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>36 physicians (obstetricians/gynaecologists) and 209 pregnant women</td>
</tr>
<tr>
<td>Attributes</td>
<td>Knowledge and willingness questions</td>
</tr>
<tr>
<td>Survey tools</td>
<td>Surveys</td>
</tr>
<tr>
<td>Results</td>
<td><strong>Physicians:</strong> 100% (36) willing to administer timely birth dose (TBD), hepatitis B immune globulin (HBIG) to infants; 63.9% (23) willing to test HBsAg + women for HBV DNA; 77.1% (27) willing to test HBsAg + women for HBeAg; 93.9% willing to treat with tenofovir for PMTCT</td>
</tr>
</tbody>
</table>
Pregnant women: 96.2% (201) had heard of HBV infection; 23% (47) reported no knowledge of HBV transmission; 98.1% willing to be tested; 93.8% willing to take antiviral to prevent mother-to-child transmission; 93.3% happy have their infant given TBD

2. Knowledge of and attitudes towards hepatitis B and its transmission from mother to child among pregnant women in Guangdong province, China; 2017

<table>
<thead>
<tr>
<th>Aim</th>
<th>To determine the knowledge base about HBV infection and willingness to implement measures to reduce HBV transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>737 pregnant women</td>
</tr>
<tr>
<td>Attributes</td>
<td>Knowledge and willingness questions</td>
</tr>
<tr>
<td>Survey tools</td>
<td>Cross-sectional survey</td>
</tr>
<tr>
<td>Results</td>
<td>20% did not know that HBV can be transmitted from mother to child; 74.7% knew that hepatitis B vaccine was available; 83.3% willing to be tested; 16.5% willing to take antiviral to prevent mother-to-child transmission; 89.8% happy to have their infant immunized.</td>
</tr>
</tbody>
</table>

3. Knowledge, attitudes and practices of hepatitis B prevention and immunization of pregnant women and mothers in northern Viet Nam; 2019

<table>
<thead>
<tr>
<th>Aim</th>
<th>To determine the knowledge, attitudes and practices of pregnant women and mothers in Viet Nam concerning HBV prevention and immunization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>380 pregnant and postpartum women</td>
</tr>
<tr>
<td>Attributes</td>
<td>Knowledge and willingness questions</td>
</tr>
<tr>
<td>Survey tools</td>
<td>Cross-sectional survey</td>
</tr>
<tr>
<td>Results</td>
<td>16% did not know that HBV can be transmitted from mother to child; 86.1% believe that hepatitis B vaccine is necessary for infants; 66.1% were willing to have their child vaccinated within 24 hours.</td>
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</table>

**Key findings**
- Most women were willing to have their infant given timely birth dose, varying from 66% (251/380) of women in Viet Nam to 93% (195/209) in Ghana.
• In Ghana, 93% of surveyed women were willing to take antiviral prophylaxis. In contrast, one study conducted in Guangdong, China found that only 17% (125/737) of women surveyed were willing to take antiviral prophylaxis.