



HAL
open science

Screening strategies to prevent mother-to-child transmission of hepatitis B in sub-Saharan Africa

Yusuke Shimakawa, Abdoulaye Seck, Shevanthi Nayagam, Coumba Touré-Kane, Maud Lemoine

► **To cite this version:**

Yusuke Shimakawa, Abdoulaye Seck, Shevanthi Nayagam, Coumba Touré-Kane, Maud Lemoine. Screening strategies to prevent mother-to-child transmission of hepatitis B in sub-Saharan Africa. *The Lancet Gastroenterology & Hepatology*, 2018, 3 (4), pp.222 - 223. 10.1016/S2468-1253(18)30033-5 . pasteur-01740755

HAL Id: pasteur-01740755

<https://pasteur.hal.science/pasteur-01740755>

Submitted on 22 Mar 2018

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

1 **Title**

2 Screening strategies to prevent mother-to-child transmission of hepatitis B in sub-Saharan
3 Africa

4

5 **Authors**

6 Yusuke Shimakawa, PhD,¹ Abdoulaye Seck, PhD,² Shevanthi Nayagam, PhD,³ Coumba
7 Toure-Kane, PhD,⁴ Maud Lemoine, PhD³

8

9 **Affiliations**

10 ¹ Unité d'Épidémiologie des Maladies Émergentes, Institut Pasteur, Paris, 25-28 rue du Dr
11 Roux, 75015, Paris, France

12 ² Laboratoire de Biologie Médicale, Institut Pasteur de Dakar, BP 220, Dakar, Senegal

13 ³ Department of Hepatology, Imperial College London, UK. Norfolk Place, London, W2
14 1NY, UK.

15 ⁴ Laboratoire de Bactériologie-Virologie, CHU Aristide le Dantec, BP 7325, Dakar, Senegal

16

17 **Corresponding Author**

18 Dr Yusuke Shimakawa

19 Unité d'Épidémiologie des Maladies Émergentes, Institut Pasteur, Paris, 25-28 rue du Dr
20 Roux, 75015, Paris, France

21 Email: yusuke.shimakawa@pasteur.fr

22 Phone: +33 (0) 1 40 61 38 87

23 Fax: +33 (0) 1 45 68 88 76

24

25 **Keywords**

26 Hepatitis B; mother-to-child transmission, prevention, Africa

27 **Main Text**

28 We agree with Wendy Spearman and colleagues¹ that prevention of mother-to-child
29 transmission (MTCT) of hepatitis B virus (HBV) should be a priority in sub-Saharan Africa.
30 WHO currently recommends administering hepatitis B vaccine to all neonates within 24 hours
31 of birth. Additionally, to further reduce the risk of MTCT in sub-Saharan Africa, it might be
32 necessary to screen pregnant women for hepatitis B surface antigen (HBsAg) and provide
33 prophylactic nucleoside analogue therapy (e.g., tenofovir) for those with high viral
34 replication, confirmed by increased HBV DNA levels or hepatitis B e antigen (HBeAg).
35 Nevertheless, access to diagnostic assays for HBV DNA or HBeAg is seriously limited in
36 sub-Saharan Africa. Consequently, when these markers are unavailable the authors
37 recommend treating all HBsAg-positive pregnant women for up to 12 weeks after delivery.¹
38 However, this recommendation is highly questionable.

39 First, for the vast majority (80-90%) of HBsAg-positive women in sub-Saharan Africa,
40 antiviral therapy during pregnancy would be of no benefit to their babies. With the timely
41 administration of birth dose vaccine, the risk of MTCT is about 20-30% from HBeAg-positive
42 mothers but close to 0% from HbsAg-positive HbeAg-negative mothers.² Unlike in Asia,
43 where half of HBsAg-positive women carry HBeAg, only 10-20% of HBsAg-positive African
44 mothers are HBeAg-positive.² Since 30-40 million women give birth annually in SSA, and
45 8% of these women carry HBsAg,³ the recommendation by Spearman and colleagues would
46 result in more than 2 million pregnant women being unnecessarily treated each year with
47 nucleoside analogues.

48 Second, unnecessary exposure to antiviral prophylaxis could cause harm to both women and
49 their infants. In sub-Saharan Africa, one woman gives birth to an average of at least five
50 children, implying that throughout their reproductive life, women who are HBsAg would be

51 repeatedly exposed to the risk of post-treatment hepatic flares, when careful monitoring of
52 these women might be difficult. Moreover, although in-utero exposure to tenofovir is
53 generally safe for the fetus without increased risk of birth defect, its long-term safety on
54 children's growth remains debated.⁴

55 Finally, antenatal screening for HBeAg using inexpensive rapid diagnostic tests might
56 overcome these problems by adequately stratifying women into different risk groups in
57 decentralised African settings. However, a recent study in Senegal documented inadequate
58 sensitivities (<50%) of the commercially available rapid diagnostic tests compared with
59 laboratory-based serological immunoassay.⁵ This finding highlights the importance of
60 developing simple, accurate, and affordable diagnostic tools to identify women at risk of
61 MTCT, and assessing the feasibility and cost-effectiveness of different antenatal screening
62 strategies to prevent MTCT in sub-Saharan Africa, which have been poorly investigated in this
63 region.

64

65 **Declaration of Interests**

66 We declare that we have no conflict of interest.

67

68 **References**

- 69 1 Spearman CW, Afihene M, Ally R, *et al.* Hepatitis B in sub-Saharan Africa: strategies
70 to achieve the 2030 elimination targets. *Lancet Gastroenterol Hepatol* 2017; **2**: 900–9.
- 71 2 Keane E, Funk AL, Shimakawa Y. Systematic review with meta-analysis: the risk of
72 mother-to-child transmission of hepatitis B virus infection in sub-Saharan Africa.

- 73 *Aliment Pharmacol Ther* 2016; **44**: 1005–17.
- 74 3 Lemoine M, Shimakawa Y, Njie R, *et al.* Acceptability and feasibility of a screen-and-
75 treat programme for hepatitis B virus infection in The Gambia: the Prevention of Liver
76 Fibrosis and Cancer in Africa (PROLIFICA) study. *Lancet Glob Heal* 2016; **4**: e559–
77 67.
- 78 4 Ehrhardt S, Xie C, Guo N, Nelson K, Thio CL. Breastfeeding while taking lamivudine
79 or tenofovir disoproxil fumarate: A review of the evidence. *Clin Infect Dis* 2015; **60**:
80 275–8.
- 81 5 Ndiaye F, Shimakawa Y, Ndiaye B, Bercion R, Vray M, Seck A. Diagnostic accuracy
82 of commercial rapid point-of-care tests for hepatitis B e antigen (HBeAg) in Senegal,
83 West Africa. World Hepatitis Summit 2017; Sao Paulo, Brazil; nov 1-3, 2017. 115
84 (abstr).