Meeting Report

The Third Hepatitis B Expert Resource Panel Consultation

12–13 January 2015
Seoul, Republic of Korea
Participants of Third Hepatitis B Expert Resource Panel Consultation, 12-13 January 2015, Seoul, Republic of Korea
REPORT

THE THIRD HEPATITIS B EXPERT RESOURCE PANEL CONSULTATION

Convened by:

WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC

12–13 January 2015
Seoul, Republic of Korea
NOTE

The views expressed in this report are those of the participants in the Third Hepatitis B Expert Resource Panel Consultation and do not necessarily reflect the policies of the Organization.

This report has been prepared by the World Health Organization Regional Office for the Western Pacific for Members States in the Region and for those who participated in the Third Hepatitis B Expert Resource Panel Consultation, which was held in Seoul, Republic of Korea, from 12 to 13 January 2015.
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEFI</td>
<td>adverse event following immunization</td>
</tr>
<tr>
<td>CTC</td>
<td>controlled temperature chain</td>
</tr>
<tr>
<td>DPT3</td>
<td>Third dose of diphtheria-pertussis-tetanus vaccine</td>
</tr>
<tr>
<td>EPI</td>
<td>Expanded Programme on Immunization</td>
</tr>
<tr>
<td>ERP</td>
<td>Expert Resource Panel</td>
</tr>
<tr>
<td>Gavi</td>
<td>Gavi, the Global Vaccine Alliance</td>
</tr>
<tr>
<td>The Global Fund</td>
<td>The Global Fund to Fight AIDS, Tuberculosis and Malaria</td>
</tr>
<tr>
<td>HB Ig</td>
<td>hepatitis B immunoglobulin</td>
</tr>
<tr>
<td>HBV</td>
<td>hepatitis B virus</td>
</tr>
<tr>
<td>HCW</td>
<td>health-care worker</td>
</tr>
<tr>
<td>JRF</td>
<td>UNICEF/WHO Joint Reporting Form</td>
</tr>
<tr>
<td>MCH</td>
<td>maternal and child health</td>
</tr>
<tr>
<td>NIP</td>
<td>National Immunization Programme</td>
</tr>
<tr>
<td>SAGE</td>
<td>Strategic Advisory Group of Experts on Immunization</td>
</tr>
<tr>
<td>TAG</td>
<td>Technical Advisory Group</td>
</tr>
<tr>
<td>TBD</td>
<td>Timely Birth Dose</td>
</tr>
<tr>
<td>VIDRL</td>
<td>Victorian Infectious Disease Reference Laboratory</td>
</tr>
</tbody>
</table>
SUMMARY

To support the Region to reach the hepatitis B control goal, the hepatitis B Expert Resource Panel (ERP) was created in 2007. Its primary purpose is to advise on the status and strategies for achieving the regional hepatitis B control goal, support the verification process, and serve on Member State verification panels. Much progress has been made in hepatitis B control in the Region, including the achievement of the 2012 milestone of reducing chronic infection prevalence in children to less than 2%. Additional guidance is needed to sustain these achievements, reach the less than 1% goal, and improve performance in priority countries.

The objectives of the consultation were:

1) to review the verification status by country and provide country specific recommendations as necessary;

2) to address technical issues raised by the 2014 global Strategic and Technical Advisory Committee on Viral Hepatitis (STAC-HEP) and the 2014 WPR Technical Advisory Group on Immunization;

3) to review and discuss developments in comprehensive viral hepatitis planning and ensure hepatitis B immunization strategies and plans are aligned; and

4) to provide guidance on strategies for achieving the 2017 goal including increasing hepatitis B birth dose coverage, using anti-virals to prevent mother-to-child transmission, and establishing a hepatitis B laboratory network.

Recommendations were made in seven technical areas: adverse events following immunization (AEFIs); diagnostics; health-care worker (HCW) vaccinations; verification; birth dose; coordination with comprehensive viral hepatitis work; and Gavi indicators.
CONTENTS

1. INTRODUCTION ............................................................................................................. 1
   1.1 Objectives .......................................................................................................................... 1
   1.2 Agenda and participants ................................................................................................. 1
   1.3 Opening ceremony .......................................................................................................... 1
   1.4 Appointment of officers ................................................................................................. 1

2. PROCEEDINGS .............................................................................................................................. 1
   2.1 Overview ............................................................................................................................ 2
      2.1.1 Western Pacific Region EPI regional framework ....................................................... 2
      2.1.2 Global overview ......................................................................................................... 2
      2.1.3 Regional overview .................................................................................................... 2
   2.2 Verification status by country .......................................................................................... 3
      2.2.1 Sustaining the progress - verified countries .............................................................. 3
      2.2.2 Australia post verification ........................................................................................ 5
      2.2.3 Republic of Korea post verification .......................................................................... 6
      2.2.4 Documenting impact ............................................................................................... 7
      2.2.5 Achieving the goal .................................................................................................... 8
      2.2.6 HBV prevention in Japan ......................................................................................... 8
   2.3 Status of comprehensive viral hepatitis planning and STAC-hep issues ......................... 8
      2.3.1 Global review of viral hepatitis control ................................................................... 8
      2.3.2 Regional overview of viral hepatitis control ............................................................ 10
      2.3.3 New developments in global estimates ................................................................ 11
   2.4 Increasing hepatitis B birth dose coverage ..................................................................... 11
      2.4.1 Kiribati pilot project ................................................................................................. 11
      2.4.2 Papua New Guinea birth dose assessment .............................................................. 12
   2.5 Communication .................................................................................................................. 13
      2.5.1 Communicating the impact of AEFI: Viet Nam example ........................................ 13
      2.5.2 Update on communication activities ........................................................................ 13
   2.6 Estimates of hepatitis B prevalence .................................................................................. 14

3. RECOMMENDATIONS .................................................................................................................. 15
   3.1 AEFIs ..................................................................................................................................... 15
   3.2 Diagnostics ......................................................................................................................... 15
   3.3 Health-worker vaccination ............................................................................................... 15
   3.4 Verification ......................................................................................................................... 15
   3.5 Birth dose .......................................................................................................................... 16
   3.6 Coordination with comprehensive viral hepatitis work ................................................... 16
   3.7 Gavi indicator ................................................................................................................... 17

ANNEXES
Annex 1. List of participants
Annex 2. Agenda
Annex 3. Timetable

Keywords: Hepatitis B - Prevention and Control / Vaccination / Immunization
1. INTRODUCTION

The Hepatitis B Expert Resource Panel (ERP) was created in 2007. A brief history of the ERP is available in the report of the ERP's second consultation. The ERP's third meeting focused on reviewing verification status by country; addressing technical issues raised by the 2014 global hepatitis Strategic Technical Advisory Committee (STAC-HEP), and the 2014 TAG; and aligning the hepatitis B immunization strategy with the global WHO hepatitis control framework (Prevention and Control of Viral Hepatitis Infection: Framework for Global Action). Specific issues discussed included strategies for improving timely birth dose coverage, strategies for introducing hepatitis B vaccine in a controlled temperature chain, and guidance on antenatal screening programmes and the use of antivirals to prevent mother-to-child transmission.

1.1 Objectives

1) to review the verification status by country and provide country specific recommendations as necessary;
2) to address technical issues raised by the 2014 global Strategic and Technical Advisory Committee on Viral Hepatitis (STAC-HEP) and the 2014 WPR Technical Advisory Group on Immunization;
3) to review and discuss developments in comprehensive viral hepatitis planning and ensure hepatitis B immunization strategies and plans are aligned; and
4) to provide guidance on strategies for achieving the 2017 goal including increasing hepatitis B birth dose coverage, using anti-virals to prevent mother-to-child transmission and establishing a hepatitis B laboratory network.

1.2 Agenda and participants

The consultation was attended by members of the WPRO Hepatitis B Expert Resource Panel, temporary advisers, observer and the WHO Secretariat. The list of participants is shown in Annex 1. The agenda and timetable are available at Annexes 2 and 3.

1.3 Opening ceremony

Dr Sergey Diorditsa delivered the opening remarks on behalf of Dr Shin Young-soo, WHO Regional Director for the Western Pacific, and welcomed the participants. He congratulated the ERP for its valuable contributions to hepatitis B control in the Region, reinforced the continued importance of hepatitis B vaccination, and wished the participants a successful meeting.

1.4 Appointment of officers

Dr Takaji Wakita was appointed Chairperson by the Regional Director for this consultation. Rapporteurs were assigned for each session.

---

1 WHO Regional Office for the Western Pacific. The second hepatitis B expert resource panel consultation. Tokyo, December 2013. Available at: http://www.wpro.who.int/immunization/meetings/2013/hepb_erp_consultation_2013_meeting_report.pdf?ua=1
2. PROCEEDINGS

2.1 Overview

2.1.1 Western Pacific Region EPI regional framework

In May 2012, the World Health Assembly endorsed the Global Vaccine Action Plan 2011–2020 (GVAP). The GVAP sets a roadmap to achieve the Decade of Vaccine vision. The Regional Framework for Implementation of Global Vaccine Action Plan in the Western Pacific has been prepared to translate GVAP strategies and activities in the context of Western Pacific Region. The framework also includes steps to accelerate progress towards achievement of current and newly proposed regional immunization goals. The TAG endorsed the draft framework at its 22nd meeting in 2013.

Significant progress has been made in the control of vaccine-preventable diseases with the support of the EPI TAG and Regional Committee for the Western Pacific. The Region has maintained polio-free status, progressed towards elimination of measles and maternal and neonatal tetanus, and accelerated control of rubella and hepatitis B. The introduction of new and underutilized vaccines, including Japanese encephalitis vaccine, has also helped to decrease disease burden.

2.1.2 Global overview

Globally vaccination coverage with 3 doses of hepatitis B vaccine is increasing and reached 81% in 2013. Hepatitis B birth dose coverage however was still less than 40% in 2013 and only 93 countries have introduced hepatitis B vaccination at birth.

2.1.3 Regional overview

The Regional Committee for the Western Pacific adopted resolutions in 2003 and in 2005, calling for measles elimination and the reduction of chronic hepatitis B infection to less than 2% among 5-year-old children by 2012. In 2013, a resolution was adopted calling for reduced hepatitis B seroprevalence to less than 1% among 5-year-old children by 2017 in the Region. During the Sixty-third World Health Assembly in 2010, World Hepatitis Day was endorsed as the primary focus for national and international awareness-raising efforts. In 2014, Member States were recommended to develop and implement coordinated multisectoral national strategies to support hepatitis B control efforts in 2014.

There was considerable progress in the implementation of universal infant vaccination starting at birth in the Region. Twelve countries and areas have been verified as having reached the goal of less than 1% hepatitis B prevalence among 5-year-old children; two countries are ready for verification; and 14 countries have planned or ongoing serosurveys. Eight countries require programme improvements.

Health-care workers (HCWs) are at higher risk of becoming infected with hepatitis B than others in the community and should be offered hepatitis B vaccination. However, the data showed that only 43% of countries and areas in the Region have a policy to vaccinate HCWs.

In 2014, the Regional Office for the Western Pacific conducted activities to improve hepatitis B control communication and advocacy. Regional Immunization Week was celebrated in April with the theme: "Stop hepatitis B and liver cancer. Vaccinate at birth". A hepatitis website was
also developed http://www.wpro.who.int/hepatitis/en/, and a regional reference guide http://www.wpro.who.int/hepatitis/hepatitis_resource_publication/ref_guide/en/ and country profiles http://www.wpro.who.int/hepatitis/hepatitis_resource_publication/country_profile/en/ were prepared.

Following hepatitis B vaccination, there were three reported deaths caused by adverse effects following immunization (AEFI) in July 2013 from Viet Nam. It was determined to be programme error. Birth dose coverage declined from 76% in 2012 to 56% in 2013. In China, 17 deaths following hepatitis B vaccination were reported from October to December 2013. All were determined to be coincidental. The Regional Office for the Western Pacific will organize a series of consultations on: birth dose in March 2015; STAC-HEP and Member States in April 2015; and EPI TAG in June 2015.

Great progress has been made in reducing hepatitis B infection and verifying achievements. Priorities are to increase vaccination coverage, monitor performance, respond to AEFIs and protect HCWs.

Discussion included:

- Many different HBsAg rapid tests are in use in the Region and the sensitivity/specificity of the kits is unknown. Field evaluations of these tests are needed. WHO headquarters is taking the lead on the assay evaluation. VIDRL is willing to assist in doing the field tests. The tests being used in the Region should be catalogued.

- On HCW vaccination, for a country to start a programme, a position paper endorsing the programme and guiding decision-making processes could be helpful. In 2007 a World Health Assembly resolution (WHA60.26) on occupational health recommended HCW vaccination. For the last five years or so, SAGE has led efforts to vaccinate all HCWs. The Republic of Korea and Australia have HCW vaccination policies.

- Viet Nam has no funding to promote the benefits of vaccination. China also has limited budget to promote the benefit of vaccination. WHO support is needed to promote the benefit of immunization especially among pregnant women.

2.2 Verification status by country

2.2.1 Sustaining the progress - verified countries

Twelve countries have been verified as having reached the goal of less than 1% hepatitis B prevalence among 5-year-old children: the Republic of Korea (2008), Macao SAR (China) (2008), Hong Kong SAR (China) (2011), Malaysia (2011), Australia (2012), China (2012), Mongolia (2012), New Zealand (2012), Palau (2013), Brunei Darussalam (2013), Cook Islands (2013), American Samoa (2014). The status of implementation of ERP recommendations is shown in Table 1.
<table>
<thead>
<tr>
<th>Country</th>
<th>ERP recommendations</th>
<th>Implementation status</th>
</tr>
</thead>
</table>
| Republic of Korea| • Strengthen mother to child prevention  
• Maintain vaccination coverage  
• Consider catch-up vaccination  
• Include hepB testing as part of other surveys  
• Conduct surveillance for disease endpoints | Has maintained high vaccination coverage per JRF                                      |
| Macao SAR (China)| • Maintain high vaccination coverage  
• Validate coverage with coverage survey | Has maintained high vaccination coverage per JRF                                      |
| Hong Kong SAR (China) | • Maintain high coverage  
• Strength birth dose coverage  
• Monitor for acute hepB  
• Test HBsAg in subpopulations and trends in liver disease  
• Consider monitoring age-specific HBsAg in pregnant women | Has maintained high vaccination coverage per JRF                                      |
| Malaysia         | • Maintain high coverage  
• Disseminate results of NIP  
• Consider catch up of older populations  
• Conduct surveillance | Slight dip in BD coverage-no reasons for drop. Has maintained high herb vaccination coverage per JRF  
District variations: some districts <80% |
| Australia        | • Maintain high coverage and monitor it  
• Document birth dose coverage  
• Conduct HBsAg studies among indigenous/immigrant groups  
• Consider monitoring HBsAg among pregnant women by race/ethnicity | Has maintained high vaccination coverage of hepB3.                                   |
| China            | • Increase TBD coverage and validate with coverage survey  
• Consider monitoring HBsAg/eAg in pregnant women  
• Improve surveillance of acute hepatitis | Has maintained high vaccination coverage per JRF  
Some districts: <50%.  
BD coverage has increased  
Coverage has improved by coverage survey  
Gaps in coverage in western and central China compared to eastern China.  
63% of women screened in 2012; 6.3% positive.  
94% of these infants got HBIG and TBD. Universal screening started in 2014.  
Acute hepB cases in Beijing going down with incidence in 2006 of 5.99 per 100 000 to 1.63/100 000.  
China has conducted a serosurvey of 0-30 year olds in 2014,* results pending in mid-2015 with plans for international workshop to review methods/findings/conclusions. |
<table>
<thead>
<tr>
<th>Country</th>
<th>Recommendations</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mongolia</td>
<td>Maintain high coverage, Conduct coverage surveys, Prevent vaccine freezing, Vaccinate HCWs, Prevent transmission during medical/cosmetic procedures, Consider initiating antenatal screening, Build surveillance system</td>
<td>Has maintained high vaccination coverage per JRF and MICS, Good coverage throughout country, Have HCW vaccination but vaccinate with two doses.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Maintain high coverage, Introduce universal BD, Evaluate screen/vaccinate policy, Conduct coverage survey</td>
<td>Has maintained high vaccination coverage per JRF</td>
</tr>
<tr>
<td>Palau</td>
<td>Maintain high coverage, Strengthen mother to child prevention, Resume/maintain vaccination of HCWs</td>
<td>Has maintained high vaccination coverage per JRF</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>Maintain high coverage, Investigate low anti-HBs in children</td>
<td>Has maintained high vaccination coverage per JRF</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>Maintain high coverage, Consider catch-up campaigns, Repeat survey before 2017, Examine vaccination strategies for non-Maori and people born overseas, Case management of people living with HepB</td>
<td>Has maintained high vaccination coverage per JRF</td>
</tr>
<tr>
<td>American Samoa</td>
<td>Maintain high coverage, Strengthen vaccination for immigrants/outer island populations, Simplify vaccination schedule</td>
<td>Not reporting vaccination data; dip in 2011 due to high HCW turnover.</td>
</tr>
</tbody>
</table>

* China is doing a serosurvey in 0–30-year-old populations because a survey was conducted in 2006 and prevalence in adults is not expected to change much.

Progress is good in maintaining high coverage, though there are potential concerns in American Samoa and Malaysia. Performance has varied in implementing ERP recommendations. Data from coverage surveys are insufficient to validate administrative reported coverage. Data on prevalence and coverage at subnational level are also insufficient. It was agreed that countries should submit regular reports potentially every three to five years to allow ERP to follow up on coverage and implementation status of the recommendations.

### 2.2.2 Australia post verification

Australia has successfully followed up on the four ERP recommendations:

1. Maintain a high quality programme, high HepB coverage and high quality vaccine coverage monitoring: By the end of first year of life, 91% of children have received their 3 doses of HepB vaccination. Only 85% of Aboriginal/Torres Strait Islander children have received their 3 doses. By the second year of life, this is >92% for all children, showing that Aboriginal/Torres Strait Islander children have delays in receiving vaccination. Subnational coverage is good, where the population is dense, but closer to 85–89% in remote areas and also among pockets that are contentious objectors. Finally, for adult vaccination, there is disparate funding across the country for hepatitis B. For example, only 33% of household contacts of people with HepB received vaccination – this is a programmatic failure.
(2) Strengthen timely birth dose and documentation of this dose: Australia has been unable to collect national data as all data comes from an immunization registry which is not populated with birth dose information as midwives do not access the registry. The Victoria Department of Health in 2012 found that 85% of children in the state received a birth dose though there was great variability by hospital – 8 of 83 hospitals had 39-73% seven-day birth dose coverage. It can be assumed that most infants received the dose before 7 days, most probably within 24-48 hours.

(3) Conduct further studies in subpopulations, immigrants, and indigenous populations: Further studies have been done which show the burden of disease in subpopulations including the study on the burden of chronic hepatitis B virus infection in Australia in 2011 (MacLachlan et al. 2013).

(4) Monitor HBsAg among pregnant women by race/ethnicity: This has been incorporated into the national HBV strategy – 95% of the population are tested for HBsAg but there is no systematic reporting. Some studies indicate HBsAg is falling in the Northern Territory. The study on the comparison of prevalence of CHB by age using country birth (2006) and maternal seroprevalence methods (2007–2009) (Turnour et al in 2011) showed that among ~43 000 pregnant women, 1.8% were HBsAg positive. Finally, 90% of new chronic HBV cases are among immigrants. Turnour, C. E., Cretikos, M. A. and Conaty, S. J. (2011), Prevalence of chronic hepatitis B in South Western Sydney: evaluation of the country of birth method using maternal seroprevalence data. Australian and New Zealand Journal of Public Health, 35: 22–26. doi: 10.1111/j.1753-6405.2010.00657.x.

Australia finalized their national HBV strategy 2014–2017. The strategy includes working with priority populations (indigenous, children born to mothers with chronic HBV and children with chronic HBV, unvaccinated adults in high-risk subgroups). The strategy also calls for increased diagnosis by 80%, and increased treatment and coverage.

Australia does not have a plan to do coverage surveys as the immunization registry is very accurate and covers more than 99% of the population. The national serosurvey does not include HBsAg.

2.2.3 Republic of Korea post verification

Since verification of hepatitis B control in 2008, the Government of the Republic of Korea has continued to control hepatitis B infection in accordance with ERP’s five recommendations.

(1) Further strengthen mother-to-child prevention: The outcome of national the Hepatitis B Perinatal Transmission Prevention Program (HBPTPP) of 2002 was reviewed in 2011. Among 69 999 children enrolled in HBPTPP from 2002 to 2010 with available follow-up serological test results, the prophylaxis failure rate was 3.14%.

Vaccine escape mutant viruses were evaluated in 22 HBsAg/anti-HBs dual positive and 62 HBsAg mono positive children with failed outcome of perinatal prophylaxis. Only six of 22 HBsAg/anti-HBs dual positive cases were PCR positive, among these 50% had mutant in major hydrophilic region of surface gene. All had G145R or A mutant. On the contrary, 46 cases out of 62 HBsAg mono positive were PCR positive, among these 14.7% had mutant in major hydrophilic region. However, there was no G145R or other mutants.

An ongoing government-funded clinical study evaluating the efficacy and safety of administering telbivudine during the third trimester of pregnancy shows promising results. These data are likely to lead to a policy change with the addition of antivirals to the HBPTPP.
(2) Maintain the vaccination coverage: According to the national immunization survey in 2014, the coverage rates of the 1st, 2nd and 3rd dose of hepatitis B vaccination in children under-36 months in 2013 were 99.9%, 99.8% and 99.4%, respectively.

(3) Consider catch-up vaccination for older populations: In the national guidelines of immunization for adults, catch-up hepatitis B vaccinations are recommended in adults without immunization history or past infection of hepatitis B; patients with chronic liver diseases, hemodialysis, HIV infection, or frequent recipients of blood products; or people with increased exposure risk of hepatitis B virus (e.g. HCW, residents and staff of facilities for people with developmental disabilities, prisoners and employees of correctional facilities, household contacts of HBsAg positive people, injection drug users, or people with sexually transmitted infections).

(4) Include hepatitis B testing in health and nutrition examination surveys: Hepatitis B serosurveys were performed in 1998, 2001, 2005, 2008 and 2011, with every 3 or 4 years included in the Korea National Health and Nutrition Examination surveys. HBsAg positive rates in people over 10 years were 4.5% in 1998, 4.2% in 2001, 3.5% in 2005, 3.2% in 2008 and 3.0% in 2011.

(5) Conduct surveillance for disease endpoints: There is a National Notifiable Disease Surveillance System for acute and chronic hepatitis B. Reports of fulfilled cases are obligatory to medical personnel.

There is also National Cancer Registration System. According to this system, hepatocellular carcinoma is the 5th most common cancer in general population, but 4th in man and 6th in woman.

The stark split between anti-HBc in people <32 years old and >32 years old in the Republic of Korea was due to catch-up vaccination in children <32 years old when they were in middle school and younger. It was harder to vaccinate the high school children as compared to the middle school children. Additionally, older age groups were exposed to reusable syringes.

Documentation on liver cancer trends is not known.

Some countries provide antiviral treatment for HBV positive pregnant women. In the Republic of Korea, national health insurance covers the cost of antiviral treatment for HBV-positive pregnant women. In Australia, HBV positive pregnant women receive antiviral treatment at 28th gestational week. Some clinics prescribe and public hospitals make payments. The use of telbivudine in clinical trial instead of tenofovir was also discussed, as telbivudine is more prone to breeding resistance. In the Republic of Korea, telbivudine is cheaper at US$ 3–4 per tablet compared to US$ 10–12 for tenofovir, and resistance is not an issue given the short treatment.

2.2.4 Documenting impact

Countries in the Region have been conducting serosurveys with the hopes of achieving the 2017 goal. Nationally representative census serosurveys have found <1% seroprevalence in Wallis and Futuna (0.9%), Tokelau (0%), French Polynesia (0%), and Commonwealth of the Northern Mariana Islands (0%). Singapore has conducted a series of non-representative serosurveys finding HBsAg prevalence between 0–0.3% in children. Kiribati hoped to have achieved the goal, but a serosurvey in 2014 found that 3.3% of grade 1 students were HBsAg positive. Studies are underway in Guam, New Caledonia and Niue, with plans underway for 2015 serosurveys in Fiji, the Marshall Islands, Samoa, Solomon Islands, Tonga and hopefully Nauru and Tuvalu. Two challenges are: 1) once a country has completed a serosurvey meeting verification criteria, countries delay application for verification for unclear reasons, examples include Wallis and Futuna, French Polynesia, and Commonwealth of the Northern Mariana
Islands; and 2) some countries have verbally committed to conducting serosurveys but progress has stalled, sometimes for years, examples include Nauru and Tuvalu.

The ERP discussed the findings on the status of HBV plans and data from implementation across the Pacific and South-East Asia. Countries are at different points in the implementation cycle: some have achieved the desired HBsAg prevalence goal yet remain unverified. These countries, specifically Singapore, should be encouraged to submit verification paperwork.

2.2.5 Achieving the goal

Seven countries require programme improvements in vaccination coverage: Cambodia, the Lao People's Democratic Republic, the Philippines, Papua New Guinea, Solomon Islands, Vanuatu and Viet Nam. Some issues vary by country. Seroprevalence data indicate differences in prevalence by country and within countries. ERP panel members noted with concern the substantial fall in birth dose coverage since the AEFI in 2013 in Viet Nam. In late 2014, initial data suggests birth dose coverage has remained low. In the 1990s, the Republic of Korea experienced a similar fall in vaccine coverage following an apparent JE. Following this, a compensation programme was established. This may overcome health worker reluctance to administer vaccines (for liability reasons) among other issues and could be considered by Viet Nam.

2.2.6 HBV prevention in Japan

Japan's two major approaches to reduce new HBV infections and carriers are: 1) HBV screening for blood; and 2) HBV prevention programme for mother-to-child infection. As a result, average HBsAg carrier rate among the first time blood donor during 2007-2011 was 0.20% in over 16 year olds. However, from the recent serosurveillance among 0–15 year olds, HBsAg positive rate was ~0.025%. These data suggest that the HBV prevention programme for mother-to-child infection has reduced the total HBsAg carrier tremendously. However, there are significant numbers of new HBV carriers who might be infected horizontally. To further reduce HBsAg carrier rate, universal HB vaccination should be considered.

2.3 Status of comprehensive viral hepatitis planning and STAC-hep issues

2.3.1 Global review of viral hepatitis control

In March 2014, the WHO convened the first Strategic and Technical Advisory Committee on Viral Hepatitis (STAC-HEP) to advise the WHO Director-General on existing WHO policies and strategies and to recommend key priority areas for action. The STAC-HEP recommended WHO be a leader in viral hepatitis prevention, diagnosis and treatment (i.e., increase visibility and capacity), support countries to develop and implement comprehensive hepatitis programmes and plans, and provide detailed recommendations for strategic direction, and technical support.

Regarding hepatitis B vaccination, the STAC-HEP recommended at least five actions including: for Member States to include a timely birth dose in their national immunizations schedule; to simplify the timely delivery of the birth dose; for Member States to attain > 90% coverage of the third dose of the hepatitis B vaccine; to identify adult groups who are at risk and susceptible; and to encourage all countries to adopt policies for hepatitis B vaccination for incoming and existing HCW with occupational exposure to HBV. STAC-HEP prioritized the setting of a global goal relating to childhood seroprevalence of chronic hepatitis B and encouraged countries and regions to adopt their own childhood seroprevalence goals complemented by targets. STAC-HEP also recommended activities related to care and anti-viral therapy including the use of clinical measures, including antiviral treatment to prevent mother-to-child transmission of HBV.
Studies have shown anti-viral prophylaxis to reduce the risk of vaccine failure for infants born to women with high viral loads (i.e., \( \geq 10^8 \) copies /mL). The United States of America is considering a revision of recommendations for maternal HBV testing to include Haig or HBV DNA testing for Haig positive pregnant women. Studies have shown that this approach could move countries closer to the goal of eliminating perinatal HBV transmission than vaccine-based strategies alone.

In May 2014, the World Health Assembly adopted a resolution calling for a comprehensive approach to prevention of viral hepatitis transmission and disease. The resolution reaffirmed the 2010 resolution and recognized viral hepatitis as a global public health problem. The World Health Assembly recommended that Member States reduce the prevalence of chronic hepatitis B infection through the delivery of the birth dose of hepatitis B vaccine; to include hepatitis B vaccine for infants, where appropriate, in national immunization programmes, work towards full coverage, and called upon all United Nations funds and programmes to include prevention, diagnosis and treatment of viral hepatitis in their programs. Regarding WHO activities, the World Health Assembly requested the Director-General help Member States develop systems for regular monitoring and reporting, assist integration into existing health systems and programmes, estimate economic impact and burden of viral hepatitis, maximize synergies between viral hepatitis prevention and the WHO global action plan for the prevention of noncommunicable diseases, and examine the feasibility of and strategies needed for the elimination of hepatitis B and hepatitis C with a view to potentially setting global targets. WHO will report on these activities to the Sixty-ninth World Health Assembly.

WHO convened a think tank in December 2014, to examine strategies to eliminate hepatitis B and hepatitis C with a view to potentially setting global targets. The subject matter experts recommended setting elimination of hepatitis B and C as a public health goal. Potential targets included reducing the incidence of infection by 90% in 2030 with intermediary targets for 2020, no babies infected by 2030 (Hepatitis B free generation), and reductions in mortality by 60–70% by 2030, with intermediary targets for 2020. Proposed secondary targets included equity and financing issues (e.g., zero catastrophic costs for households affected by 2030, zero discrimination in access to services), access to vaccination and treatment including coverage targets for intermediate (2020) and final (2030). Proposed targets for 2030 included 90% coverage of infant vaccination, 80% HepB birth dose, and 90% diagnosed, 90% eligible treated, and 90% cured for hepatitis B and C. WHO was requested to develop models for elimination.

Seven issues were identified:
1) access to quality diagnostics;
2) reductions in treatment cost;
3) improvements in therapies for hepatitis B;
4) innovations in delivery of birth dose and other approaches to eliminate mother to child transmission;
5) improvements in injection safety and harm reduction;
6) data for programme evaluation; and
7) partnerships and collaborations with key stakeholders.

The think tank's proposals will be presented to STAC-HEP in February 2015 for further development as recommendations to the Director-General. By June 2015, WHO plans to complete a global investment case for hepatitis B and C elimination supported by two or three country cases and guidance on hepatitis B and C indicators including surveillance methods and an evaluation framework. In 2015, WHO will convene regional consultations with stakeholders (e.g., ministries of health, civil society, patient groups and industry). In 2016, WHO plans to present a plan for viral hepatitis elimination to the World Health Assembly.
Synergizing processes could be challenging especially with limited staff. However, with the public partnership and hiring more staff in the next three to four months, there will be 30% increase of the workforce for the coordination process. WHO Regional Office for the Western Pacific can help build a stronger bridge between hepatitis and immunization programmes. Additionally, with hepatitis C harm reduction, though, there are predominant experts, more hepatitis B people needed to be involved with good representation from immunization groups and experts and having the Regional Director and the committee to write for representational help. The Western Pacific Region has always led the way in eliminating mother-child transmission. The Region has already achieved the goal in 2014. Once data on the usage of antiviral treatment is available, the Western Pacific Region will be the first region to achieve a total elimination of mother-to-child transmission.

2.3.2 Regional overview of viral hepatitis control

Two World Health Assembly resolutions (WHA63.18 and WHA67.6) call for comprehensive action to address viral hepatitis. To support Member States, the Regional Office for the Western Pacific has appointed a focal point for viral hepatitis, a senior advisor in the WHO China office. Created an informal working group in 2014, a viral hepatitis mission to Mongolia and a side event at the sixty-fifth session of the Regional Committee is currently developing a regional hepatitis action plan in collaboration with Member States. The action plan will use lessons from HIV to establish a public health approach for viral hepatitis.

Considerations specific to addressing hepatitis include: health sector transmission, secondary progression, links to hepatitis B immunisation programs and liver cancer prevention programmes and the private sector as large proportion of chronic hepatitis treatment occurs in the private sector in the Western Pacific Region. The necessity to stage liver disease in viral hepatitis treatment is important as this can prioritize patients when resources are limited. The draft outline of the regional hepatitis action plan was presented for ERP feedback. Target setting will be difficult given the great variation in addressing hepatitis screening, care and treatment across the Western Pacific Region. The action plan will need a domestic and external funding framework for technical support to low- and lower-middle-income countries, disease burden estimation, economic analysis of hepatitis action impact and cost in countries.

Discussion included:
• The Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund) is continuing to fund co-infection initiatives and will continue to examine the pricing option. HBV is a backbone for the future viral hepatitis plan and an important anchor for the regional action plan.
• Discrimination and elimination of stigma is a key issue, especially in China. Some people are reluctant to get tested and obtain their results. There should be a national policy and workplace regulation against discrimination.
• In Mongolia, treatment is difficult. Of those who commenced interferon (a couple of years ago), many dropped out because of side effects. Issues include fragile infrastructure (i.e. lack of x-ray machines), poor training, rural communities. A six-month course was developed to take it back to Mongolia and staff from NCCD visited Stanford for training.
• STAC and ERP meetings could be held back-to-back to improve coordination between ERP and STAC.
• Key areas of synergy include Viral Diagnostic Laboratory network and advocacy.
• When developing action plans it is important to have a focal point to manage bureaucratic processes.
2.3.3 New developments in global estimates

The Gavi Board has recently approved a strategic framework for 2016–2020. This is the first framework to include a disease dashboard with indicators to empirically track health impact. Further work /development of indicators will be needed to develop approaches to implement the strategy including: scope of the health impact indicators to be tracked; subset of health impact indicators to be featured on strategy framework; indicator definitions, methodologies, assumptions and data sources; strengths and limitations of the selected indicators; and mechanisms for communicating the indicator data.

Discussion included:

- Deliberation as to what would be the numerator for countries meeting the <1% goal.
- A strong standard for serosurvey quality must be set and ERP should make a recommendation on this. The basis could be the Regional Office for the Western Pacific indicators and this WHO process can be proposed to Gavi. The indicators should also include monitoring coverage of birth dose to encourage Gavi to support this.
- The numbers of children and population should be stated rather than focus on number of countries.
- A mechanism of communication with Gavi must be determined.
- The Lao People's Democratic Republic birth-dose meeting presents a unique advocacy opportunity since Lao Minister of Health is now a Gavi board member.
- ERP formal communication to Gavi prior to the June Gavi board meeting and development of a presentation for the Gavi board meeting.
- Gavi could provide support to serosurvey and lab network process. Regional Office for the Western Pacific can provide some estimates of approximate cost in support of the Gavi’s programme, not limited to countries eligible for support. This is an important opportunity for ERP to make recommendations to Gavi as the greatest impact of Gavi is hepatitis B.

2.4 Increasing hepatitis B birth dose coverage

2.4.1 Kiribati pilot project

Serosurveys found that HBsAg prevalence in Kiribati among adults ranges from 15–30%. In 2013, among pregnant women screened for HBsAg, 10% were found to be HBsAg positive. A 2014 national serosurvey conducted among 5-year-old children found HBsAg prevalence was 3.1%.

Hepatitis B vaccination coverage in Kiribati showed 95% coverage of the third dose Hepatitis B vaccine and only 84% timely birth dose coverage. This demonstrates that 16% of newborns do not receive a timely birth dose and are at risk of perinatal infection.

The pilot project in Kiribati aims to increase provision and demand for the Hepatitis B birth dose vaccination. This includes improving communication between communities and health facilities to increase access to newborns for birth dose vaccination, and education of pregnant women on the link between hepatitis B and liver disease and the importance of birth dose vaccination. Preliminary findings of the baseline survey done in the community showed that 81% of mothers in South Tarawa had heard of hepatitis B, compared with only 59% from outer islands. However, only 14–15% of mothers in Kiribati knew that Hepatitis B causes liver cancer. Homebirths are higher in outer islands (25%) than in South Tarawa (14%). Knowledge about vaccines among mothers was also low.
Preliminary data analysis found that 67% of facilities in South Tarawa and no outer islands facilities had hepatitis B monovalent vaccine in stock. Health facilities in South Tarawa do not perform deliveries, while in outer islands, 67% of health facilities perform deliveries. In 2013, 16 outreach birth dose vaccinations were done on South Tarawa and only one in outer islands. Health volunteers in South Tarawa do not inform the clinic of home births, while 67% of clinics in outer islands were informed of home births. Health facility staff were all aware of timing of the birth dose.

The study’s sample included Tarawa and other islands but was not powered to look at the difference between the regions or islands. As such, differences in the prevalence of hepatitis B by regions or islands are not documented. Half of the children from Tarawa were HB positive, but there is a lot of migration to the capital. It is unclear if the children were infected in Tarawa, or infected from the outer islands and moved to Tarawa.

The number of births reported matched the community survey and are a good reflection of the births in the community. However, knowledge about vaccines among mothers was low, thus increasing knowledge could increase demand for vaccines. Increasing linkages between health workers and village health volunteers is also important. To increase volunteer performance, a small stipend to attend monthly meetings was given. Registration books were also distributed to village health volunteers. However, there was concern as to whether they will be motivated to do the work.

2.4.2 Papua New Guinea birth dose assessment

Papua New Guinea is highly endemic for hepatitis B, with a population seroprevalence of >10%. In 2012, the national reported birth dose (BD) coverage within 24 hours was 35% and the reported three dose coverage was 67%. The 2013 serosurvey found prevalence of 2.3% among children with considerable variation by region and age group. Improvements are needed in both timely BD coverage as well as three-dose coverage in order to effectively control hepatitis B in Papua New Guinea.

Improving birth dose coverage in Papua New Guinea requires a comprehensive understanding of the current status of the program. However, little data exist on the birth dose program in Papua New Guinea, thus, a study has been initiated. The study gathered data on the birth dose vaccination program in Papua New Guinea including the delivery of the birth dose in various settings, the barriers both for health workers and mother/neonates in providing and receiving this vaccine within 24 hours, the birth dose data collection system, and knowledge and practice of mothers related to childbirth and BD vaccination. Preliminary findings indicate poor vaccine stock management, minimum supervision and training of health workers, health workers are unaware of multi-dose open vial policy, and there was a low hepatitis B vaccination even when vaccine was available due to the lack of knowledge among nurses on the importance of the vaccination.

There was a poor integration of Millennium Challenge Account (MCA) and delivery services in the hospital. In rural hospitals there is low vaccination coverage and poor knowledge of vaccines. It was mentioned that Papua New Guinea had a pilot project on Uniject using volunteers, but no follow-up has taken place. Social barriers and cultural difference is another issue. There is an ongoing tribal war in one province (Hela) and health facilities have been destroyed.
2.5 Communication

2.5.1 Communicating the impact of AEFI: Viet Nam example

Adverse events following immunization (AEFI) if not rapidly and effectively dealt with, can undermine confidence in a vaccine and ultimately have dramatic consequences for immunization coverage and disease incidence. In Viet Nam in 2013, the deaths of three newborns following birth dose vaccination led to a decline in birth dose coverage from 76% in 2012 to 56% in 2013. Investigation showed that the reported AEFIs in Viet Nam were programme error and not related to the use of the vaccine. Due to AEFIs, people have become increasingly concerned about the risks associated with vaccines, health staff hesitate to vaccinate children, and temporary suspension of vaccination resulted in reduction of immunization coverage.

Given the prevalence of chronic HBV infection and its public health impact, investigators conducted an estimate of impact on transmission using the Goldstein model. The results showed: 1) without vaccination, among children born in 2013, a total of 293,676 chronic HBV infections and 56,655 deaths caused by HBV are expected in their lifetime; 2) with the reported 2013 coverage, 130,675 chronic infections and 25,197 deaths are expected among this birth cohort, 3) if the vaccination coverage had been maintained at the same level as in 2012, 40,538 chronic infections and 17,456 deaths would occur due to the drop in vaccination coverage in 2013, if no catch-up immunization is conducted in this birth cohort. More than 16,000 lives could have been saved in the 2013 birth cohort in Viet Nam if the vaccination coverage had been maintained at 2012 level.

Discussion included:
- The focus needs to shift from fear of vaccine to fear of disease.
- To prevent mix-up of vials, there should be a mechanism to avoid the incident. WHO birth dose guidance states that vaccines should be kept separately. In the AEFI example, due to a power outage the nurse tried to find the vaccine vial using a mobile phone light, however, the nurse got the wrong vial instead.
- Physical proximity of locating vials is an issue. There should be an assessment of clinical practices: how often the unsafe practices are occurring in a clinical setting. In a number of countries, “right dose, right vial” campaign was done to address the issue.
- Education is the most important in persuading people: the media plays a role in education.
- The quality of the HBsAg rapid test being used to screen pregnant women in Viet Nam is not known. Media engagement in Viet Nam is a source of amplification. Medical societies who would be willing to engage in the proactive media campaign should be approached. Personal anecdotes can capture attention e.g. "a person who was not vaccinated suffers from the disease”.
- WHO's role in communication: WHO has recommendations and capacity to help the governments upon request. Government should allocate some funds for media campaigns.
- The communication response to the 2006–2007 AEFI incidents was a failure.
- Collaboration is critical in response, communication and investigation.

2.5.2 Update on communication activities

The Asian Liver Center at Stanford University conducted and funded hepatitis B awareness and social mobilization initiatives in the Region to increase awareness of the importance of hepatitis B birth dose and to eliminate disease stigma.

About 48,000 posters entitled “Protect your child from hepatitis B and liver cancer” were provided to Viet Nam. Developed by Viet Nam Ministry of Health and WHO, the posters were
displayed in clinics and hospitals in several provinces including Hanoi. In the Philippines, the first Jade Ribbon Award was presented by the centre to Senator Pia Cayetano at the Philippine Senate to recognize her leadership in passing legislation to require hepatitis B vaccination to be given within 24 hours of birth.

In China, the Asian Liver Center launched a large scale World Hepatitis Day social media campaign in partnership with several large internet companies that included “The Lucky Tenth” a short film to eliminate disease stigma featuring famous Chinese movie stars. The film reached 14 million people and was shown for 45 days around Christmas at the Beijing international airport terminal as part of the Jade Ribbon take-me-home hepatitis B awareness campaign. In China, an estimated 500 NGOs work on HIV –only three of these address HBV. The Asian Liver Center established the Zhong Fund and in 2014 helped to train and support 23 NGOs to raise hepatitis B awareness. A similar programme and the establishment of the Shenshen Fund supports student groups in universities across China to raise hepatitis B awareness in rural and urban regions.

Large scale social mobilization and media programs are also part of the Jade Ribbon Campaign to eliminate perinatal transmission of hepatitis B in Gansu and Qinghai provinces in the northwestern part of China. Supported by the Asian Liver Center, provincial health departments and CDC, the campaign focuses on online training of HCWs and educating mothers-to-be and pregnant women by videos, lectures, posters and pamphlets at schools, clinics and hospitals. Faith-based outreach to the large minority populations engages Tibetan monks and Muslim leaders with culturally and linguistically appropriate videos and materials. To increase public awareness, Qinghai province also use highway electronic signs and bus LCD displays to educate the public about transmission routes and vaccination, and Gansu province hosted a drawing competition to promote vaccination and launched 12320, a health department hotline.

The The Lucky Tenth campaign has been successful and can be adapted to other countries such as Mongolia (one of the NCCD staff to educate in Thailand). In Gansu, hepatitis B reporting has dropped. Philanthropists of Chinese descent could be approached. Asian American immigrants who had been diagnosed with liver cancer donated to the Viet Nam project. Pushing messages about life/death is not effective. Brand recognition “Jade Ribbon” is important in global public health campaigns. Though team HBV were recruited from all over the world, local people are as important as the global team.

2.6 Estimates of hepatitis B prevalence

In the Western Pacific Region, 8% to 10% of the adult population are chronically infected with only four of the 32 countries and areas having a low carriage rate – defined as less than 2% prevalence of hepatitis B surface antigen (HBsAg) – and 14 having a high carriage rate (more than 8% prevalence of HBsAg). Most people in the region become infected with HBV during childhood.

Each year, there are 444 000 deaths due to Hepatitis B in the Western Pacific Region. Since 1990, more than 7 million people were saved by vaccine and this is likely to be an underestimate since vaccine coverage was not reported in many countries in the 1990s. In children born in 2013, chronic infection prevented was 2 668 332 and deaths prevented was 500 505 by vaccination. An estimated 199 000 perinatal infections occurred in 2013, of these, 179 000 became chronic. The 2017 goal can be met through high vaccine coverage and data on prevalence of serologic markers.
3. RECOMMENDATIONS

The ERP recognizes the impressive gains in reaching the regional goal to reduce hepatitis B prevalence to less than 1% among children at least 5 years old. The ERP's recommendations focus on the efforts needed to achieve the goal in all countries, and how to ensure effective collaboration on hepatitis B prevention through immunization and broader efforts to control viral hepatitis.

3.1 AEFIs

(1) The ERP is extremely concerned about the recent reduction in hepatitis B birth dose coverage in Viet Nam and recommends that the WHO Regional Office for the Western Pacific engage with Viet Nam to provide technical assistance and engage with civil society in a proactive media campaign to regain public and HCW confidence in the safety and value of the birth dose vaccine.

3.2 Diagnostics

(2) The ERP recommends that the WHO Regional Office compile a list of hepatitis B rapid diagnostic assays used in the Region and follow-up with WHO headquarters on prequalification status of test kits.

(3) The ERP recommends that VIDRL and other regional partner laboratories assist with field testing of the rapid diagnostic assays in use to provide estimates of their sensitivity and specificity under field conditions.

3.3 Health worker vaccination

(4) The ERP recommends that the WHO Regional Office compile detailed information on health-care worker (HCW) vaccination policies in the Western Pacific Region.

(5) The ERP recommends that the WHO Regional Office reword the JRF question on health students and worker vaccination policy:

   i. Is there a policy for health-worker vaccination for HBV? If so, from what year?
   ii. If so, is the policy being implemented. If so, from what year?

(6) The ERP recommends that a recommendation for hepatitis B HCW vaccination be presented at the 2015 EPI TAG meeting. Hepatitis B vaccination for HCWs may form the basis for further action addressing other infectious disease vaccination initiatives for HCWs.

(7) The ERP recommends that the WHO Regional Office raise the issue of hepatitis B HCW vaccination at the cross-divisional WHO Regional Office viral hepatitis working group to ensure synergy and collaboration with health systems efforts.

3.4 Verification

(8) The ERP recommends that the Regional Director for the Western Pacific send a letter to all Member States eligible for verification to encourage these countries to apply. These communications should be tailored to the country-specific situation.
(9) The ERP is encouraged by recent developments in Japan towards universal infant hepatitis B vaccination and recommends that Japan continue to implement the necessary steps to introduce universal infant hepatitis B vaccination as soon as possible.

(10) The ERP recommends that the ERP conduct annual post-verification reviews including hepatitis B vaccination data, serorevalence data, and status of implementation of the ERP recommendations made at the time of verification. Queries or recommendations to countries may be made as needed based on the findings from the annual review.

3.5 Birth dose

The ERP recognizes that, in settings where there are few prospects for rapidly increasing facility deliveries in low resource settings, the controlled temperature chain (CTC) strategy remains the most viable strategy for rapidly increasing timely BD coverage.

(11) The ERP recommends that the WHO Regional Office prioritize TA to the Philippines and Viet Nam to improve birth dose coverage in these countries. To monitor progress, the ERP recommends the next meeting be held in Hanoi.

(12) The ERP recommends exploring the lessons learnt in other countries which have instituted CTC policies or programs, such as Indonesia.

(13) The ERP recommends establishing close coordination with other initiatives and services relevant to hepatitis B programming, including MCH services, to ensure the BD is delivered in a timely manner.

(14) The ERP recommends that 1 or 2 ERP members participate in the BD workshop in Vientiane in March 2015.

(15) The ERP recommends that assessment of safe hepatitis B vaccine handling practices be included in EPI reviews in the region. This could include the safe storing of vaccines separate from other medicines, and a system to ensure that the administration of the birth dose is separated from administration of oxytocin to mothers or other medicines that could be confused with the hepatitis B vaccine.

3.6 Coordination with comprehensive viral hepatitis work

The ERP welcomes and supports the development of a regional hepatitis action plan that will cover the four axes of the framework for global action for prevention and control of viral hepatitis.

(16) The ERP recommends that the viral hepatitis working group developing the plan should be aware of the work of the ERP and that the work of the ERP be reflected in the plan.

(17) The ERP recommends that the viral hepatitis working group share the draft plan with ERP members for review and feedback as soon as possible.

(18) The ERP recommends that membership of the ERP and the Regional Strategic Technical Advisory Committee on Hepatitis (STAC) should overlap and the work of both should be complementary and coordinated. Some of the areas of common interest include diagnostics, prevention, advocacy and sharing of meeting reports.
The ERP recommends that regular ERP and STAC meetings be held back to back with one day of overlap to discuss common issues and ensure coordination of efforts.

The ERP recommends that the ERP write to Regional Director and the global Strategic Technical Advisory Committee on Hepatitis (STAC-Hep) to advocate for increased membership of hepatitis B advocates/specialists on the WHO Global Hepatitis Program civil society reference group.

3.7 Gavi indicator

The ERP has become aware that a disease impact dashboard is being developed by Gavi that is expected to include a hepatitis B indicator(s).

The ERP proposes that Gavi incorporate the existing WPR hepatitis B verification process in the development of hepatitis B indicator(s) in the Gavi disease impact dashboard.

i. Gavi support for regional verification processes would enable measurement of progress towards hepatitis B control goals in Gavi-eligible countries and would leverage existing Gavi partner investments in measuring progress towards hepatitis B control goals.

ii. Gavi support for development and implementation of regional verification processes would also align with the WHO SAGE recommendation that all regions and associated countries develop goals for hepatitis B control appropriate to their epidemiological situation.

The ERP proposes that the Gavi hepatitis B indicator(s) are adaptable and consistent with existing and age groups and seroprevalence targets in proposed regional hepatitis B control goals.

i. The Western Pacific Region has a goal for all countries to achieve a <1% HBsAg prevalence target among children aged ≥ 5 years by 2017 after WPR achieved an interim milestone of 2% HBsAg prevalence by 2012. EMR has established a control goal with a <1% HBsAg seroprevalence target for children aged <5 years by 2015; AFR has established a control goal with a <2% HBsAg seroprevalence target for children aged <5 years by 2020; and EUR is considering establishing a control goal with a <0.5% HBsAg seroprevalence target for children and adolescents aged 5-15 years.

ii. In addition to a national seroprevalence target, the ERP believes that a target representing the number of chronic HBV infections prevented among children could be developed for Gavi-eligible countries (e.g., number of chronic HBV infections prevented among children in Gavi-eligible countries).

The ERP proposes that the development of the Gavi hepatitis B indicator should be informed by the biases and limitations arising due to the variety of methods, diagnostic assays, and populations surveyed in hepatitis B seroprevalence surveys reported in the medical literature.

i. The regional verification process provides a consistent approach and methods to assess hepatitis B seroprevalence data reported from countries.
ii. The importance of quality hepatitis B diagnostics and testing for the verification process has also been recognized, which has led to the development of a WPR hepatitis B laboratory network to assure the quality of diagnostic test results.

(24) The ERP proposes that the development of a hepatitis B indicator(s) in the Gavi disease impact dashboard is linked with a process for programmatic improvement to achieve and sustain regional hepatitis B control goals.

i. The regional verification process provides a mechanism to review hepatitis B vaccination programmatic elements, including 3-dose and birth dose coverage for hepatitis B vaccine, and to provide recommendations for program improvements.

(25) ERP urges Gavi to monitor birth dose coverage and to provide funding and support to monitor and achieve hepatitis B control targets.
ANNEX 1

LIST OF PARTICIPANTS

1. EXPERT RESOURCE PANEL

Dr Benjamin Cowie, Epidemiologist and Physician. WHO Regional Reference Laboratory for Hepatitis B, Victorian Infectious Diseases Reference Laboratory (VIDRL), Royal Melbourne Hospital, The Doherty Institute, University of Melbourne, Victoria 3000, Australia
Tel no: 61-3 9342 9374; Fax no: 61-3 9342 9380; Email: benjamin.cowie@mh.org.au

Dr Jong-Hyun KIM, Professor, Department of Paediatrics, College of Medicine
The Catholic University of Korea, St Vincent's Hospital, 93 Jeedong, Paldagu, Suwon, Kyonggido 442-723, Republic of Korea; Tel no: 82-31 2498212; 82-10-90990669 (mobile)
Fax no: 82-31 2579111; Email: jh00mn@catholic.ac.kr

Dr Eric Mast, Associate Director for Science, Global Immunization Division, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention; 1600 Clifton Road NE, Atlanta, GA 30333, U.S.A. Tel no: 1 404 639 8762
Fax no: 1 404 639 8573; Email: emast@cdc.gov

Dr Tilman Ruff, Associate Professor, Nossal Institute for Global Health, Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Melbourne, Australia;
Tel no: 613 9592 8643; Fax no: 613 9692 4682; Email: tar@unimelb.edu.au

Dr Takaji Wakita (EPR Chair), Director, Department of Virology II, National Institute of Infectious Diseases; 1-23-1, Toyama, Shinjuku, Tokyo 162-8640, Japan;
Tel no: 813 5185 1111 ext 2500; Fax no: 813 5185 1161; Email: wakita@nih.go.jp

Dr John Ward, Director, Division of Viral Hepatitis, National Center for HIV/AIDS
Division of Viral Hepatitis, Centers for Disease Control and Prevention, 1600 Clifton Road NE
Atlanta, GA 30333, U.S.A.; Tel no: 1-404 7188554; Fax no: 1-404 7188588;
Email : jww4@CDC.GOV

2. TEMPORARY ADVISERS

Dr Minal Patel, Team Leader/Medical Epidemiologist, Accelerated Disease Control and Vaccine Preventable Disease Surveillance, Global Immunization Division, Centers for Disease Control and Prevention, Mailstop E05, 1600 Clifton Road, Atlanta, GA 30333, U.S.A.
Tel no: 1-404 6398907; Fax no: 1-404 6398573; Email: hgo9@cdc.gov

Dr Samuel So, Director, Asian Liver Center, 490 S. California Avenue, Suite 300, Palo Alto CA 94306, U.S.A.; Tel no: 650 4986092; Fax no: 650 7361048; Email: samso1@gmail.com
Annex 1

3. OBSERVERS

Professor Jongkoo Lee, Director, JW Lee Center for Global Medicine / Vice President, Policy and Development, Seoul National University College of Medicine, 101 Daehak-ro, Jongno-gu, Seoul 110-744, Republic of Korea, Tel : 822-20720318

Dr Youngmee Jee, Director, Center for Pathology and Immunology, Korea Center for Disease Control and Prevention, Ministry of Health and Welfare, Cheungcheongbuk-do, Republic of Korea; Tel no: 82-43-719-8400; Email: jeey62@gmail.com

Dr Ok Park, Director, Division of Vaccine Preventable Disease Control, National Immunization Programme, Korea Center for Disease Control and Prevention, Ministry of Health and Welfare Cheungcheongbuk-do, Republic of Korea; Tel no: 82-43 7196810; Fax no: 82-43 7196859 Email: okpark8932@gmail.com

Dr Young Joon Park, Deputy Scientific Director, Korea Center for Disease Control and Prevention, Ministry of Health and Welfare, Cheungcheongbuk-do, Republic of Korea

Dr Taeun Yang, Principal Researcher, Korea Center for Disease Control and Prevention, Ministry of Health and Welfare, Cheungcheongbuk-do, Republic of Korea

Ms Eunsuk shin, Senior Researcher, Korea Center for Disease Control and Prevention Ministry of Health and Welfare, Cheungcheongbuk-do, Republic of Korea

Mr Dongwool Kim, Senior Researcher, Korea Center for Disease Control and Prevention, Ministry of Health and Welfare, Cheungcheongbuk-do, Republic of Korea

Ms Ji Young Kim, c/o Ewha Woman's University, Seoul, Republic of Korea Tel no: 82-10-89702076; Email: bomnadlee@gmail.com

4. SECRETARIAT

Dr Sergey Diorditsa, Coordinator, Expanded Programme on Immunization, Division of Communicable Diseases, World Health Organization, Regional Office for the Western Pacific United Nations Avenue, 1000 Manila, Philippines; Tel no: 63 2 528 9045 Fax no: 63 2 521 1036; Email: diorditsas@wpro.who.int

Mr Eric Wiesen, Technical Officer (Hepatitis B Control and Prevention), Expanded Programme on Immunization, Division of Communicable Diseases, World Health Organization, Regional Office for the Western Pacific, United Nations Avenue, 1000 Manila, Philippines; Tel no: 63 2 528 9034; Fax no: 63 2 521 1036; Email: wiesene@wpro.who.int

Dr Nicholas WALSH, Medical Officer (Viral Hepatitis), HIV, Hepatitis and Sexually Transmitted Infections, Division of Communicable Diseases, World Health Organization Regional Office for the Western Pacific, United Nations Avenue, 1000 Manila, Philippines; Tel no: 63-2 5289034; Fax no: 63-2 5211036; E-mail: wiesene@wpro.who.int
ANNEX 2

AGENDA

1. Welcome and administration

2. Overview
   2.1 WPRO EPI Regional Framework
   2.2 Global overview
   2.3 Regional overview

3. Verification status by country
   3.1 Sustaining the progress (verified countries)
   3.2 Australia post verification
   3.3 Republic of Korea post verification
   3.4 Documenting impact (countries with recent planned serosurveys for verification)
   3.5 Achieving the goal (countries requiring programme improvements)
   3.6 Hepatitis B virus prevention in Japan

4. Status of comprehensive viral hepatitis planning and STAC-hep issues
   4.1 Global overview of viral hepatitis control
   4.2 Regional overview of viral hepatitis control
   4.3 New developments in global estimates

5. Increasing hepatitis B birthdose coverage
   5.1 Kiribati pilot project
   5.2 Papua New Guinea birth dose assessment

6. Communication
   6.1 Communicating the impact of AEFI: Viet Nam example
   6.2 Update on communication activities

7. Development of recommendations

8. Estimates of hepatitis B prevalence
   8.1 Recent estimates of prevalence and mortality in WPRO

9. Recommendations and closing
   9.1 Recommendations
   9.2 Closing
## TIMETABLE

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday, 12 January</th>
<th>Time</th>
<th>Tuesday, 13 January</th>
</tr>
</thead>
<tbody>
<tr>
<td>0830</td>
<td>Registration</td>
<td>0900-1015</td>
<td>5. Increasing hepatitis B birth dose coverage</td>
</tr>
<tr>
<td>0900-0945</td>
<td>1. Welcome and administration</td>
<td></td>
<td>• Kiribati pilot project (E Wiesen)</td>
</tr>
<tr>
<td>0945-1045</td>
<td>• Opening remarks (WHO)</td>
<td></td>
<td>• Papua New Guinea birth dose assessment (E Wiesen)</td>
</tr>
<tr>
<td>1045-1100</td>
<td>• Welcome from host</td>
<td></td>
<td>Discussion</td>
</tr>
<tr>
<td>1100-1200</td>
<td>• Introductions</td>
<td>1015-1045</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>1045-1100</td>
<td>• Overview</td>
<td>1045-1200</td>
<td>6. Communication</td>
</tr>
<tr>
<td>0945-1045</td>
<td></td>
<td></td>
<td>• Communicating the impact of AEFI: Viet Nam example (E Wiesen)</td>
</tr>
<tr>
<td>1100-1200</td>
<td>2. Overview</td>
<td></td>
<td>• Update on communication activities (S So)</td>
</tr>
<tr>
<td>0945-1045</td>
<td>• WPRO EPI Regional Framework (S Diorditsa)</td>
<td></td>
<td>Discussion</td>
</tr>
<tr>
<td>1100-1200</td>
<td>• Global overview</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0945-1045</td>
<td>• Regional overview (E Wiesen)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100-1200</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200-1200</td>
<td>3. Verification status by country</td>
<td>1200-0100</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>0945-1045</td>
<td>• Sustaining the progress - verified countries (E Wiesen)</td>
<td>1200-0100</td>
<td></td>
</tr>
<tr>
<td>1200-1200</td>
<td>• Australia post verification (B Cowie)</td>
<td>1200-0100</td>
<td></td>
</tr>
<tr>
<td>0945-1045</td>
<td>• Republic of Korea post verification (JH Kim)</td>
<td>1200-0100</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>1200-1200</td>
<td>Discussion</td>
<td>1200-0100</td>
<td></td>
</tr>
<tr>
<td>0100-0300</td>
<td>4. Verification status by country (cont’d)</td>
<td>0100-</td>
<td>7. Development of recommendations</td>
</tr>
<tr>
<td>0945-1045</td>
<td>• Documenting impact (M Patel)</td>
<td>0100-</td>
<td></td>
</tr>
<tr>
<td>1200-1200</td>
<td>Discussion</td>
<td>0200-0300</td>
<td>8. Estimates of hepatitis B prevalence</td>
</tr>
<tr>
<td>0945-1045</td>
<td>• Achieving the goal (E Wiesen)</td>
<td></td>
<td>• Recent estimates of prevalence and mortality in WPRO (E Wiesen)</td>
</tr>
<tr>
<td>1200-1200</td>
<td>• HBV prevention in Japan (T Wakita)</td>
<td>0300-0330</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>0945-1045</td>
<td>Discussion</td>
<td>0300-0330</td>
<td></td>
</tr>
<tr>
<td>0945-1045</td>
<td>• Global overview of viral hepatitis control (J Ward)</td>
<td></td>
<td>• Recommendations (Chair)</td>
</tr>
<tr>
<td>1200-1200</td>
<td>• Regional overview of viral hepatitis control (N Walsh)</td>
<td></td>
<td>• Closing remarks</td>
</tr>
<tr>
<td>0945-1045</td>
<td>• New developments in global estimates (E Mast)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200-1200</td>
<td>Discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0315-0500</td>
<td>Reception</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>