



Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine



Assessment of the hepatitis B birth dose vaccination program, Papua New Guinea, 2014

Eric Wiesen^a, William Lagani^b, Gerard Sui^b, Johnnie Arava^b, Salim Reza^c,
Sergey Diorditsa^a, Yung-Ching Lin^{d,*}

^a Expanded Program on Immunization Unit, World Health Organization Regional Office for the Western Pacific, Manila, Philippines

^b National Department of Health, Port Moresby, Papua New Guinea

^c Expanded Program on Immunization Unit, World Health Organization, Port Moresby, Papua New Guinea

^d The European Programme for Intervention Epidemiology Training (EPIET), European Centre for Disease Prevention and Control, Stockholm, Sweden

ARTICLE INFO

Article history:

Received 16 September 2015
Received in revised form
11 November 2015
Accepted 13 November 2015
Available online xxx

Keywords:

Hepatitis B vaccines
Papua New Guinea
Health knowledge, attitudes, practice
Caregivers
Health facilities
Home childbirth
Immunization program

ABSTRACT

Introduction: Papua New Guinea (PNG) implemented hepatitis B birth dose (BD) vaccination in 2005 yet since that time coverage has remained low, allowing mother-to-child transmission to occur. We conducted a field assessment of the BD vaccination program to develop strategies for improving the BD coverage.

Methods: We selected five provinces with higher hepatitis B prevalence and five with lower prevalence based on the results of a 2013 hepatitis B serological survey. Within each province, we interviewed district and provincial health officers, health workers, village volunteers, and caregivers from ten randomly selected health facilities. Data were collected on knowledge, practice, vaccine management and data recording/reporting. To identify enabling factors and barriers, we compared health facilities with higher BD coverage with those with lower coverage, and compared caregivers whose children received BD with those whose children did not.

Results: Overall timely BD coverage was 31% and BD vaccination was taking place in 81% of sampled health facilities. Lack of cold chain and vaccine were the major reasons for not providing the BD. Insufficiencies in supervision, vaccine management, community outreach, and data management were identified as obstacles to achieving high timely hepatitis B BD coverage. Good supervision, knowledge of hepatitis B and hepatitis B vaccination, antenatal care including information about the hepatitis B BD, provision of vaccine refrigerators in maternity wards, and outreach vaccination for home deliveries were associated with higher timely BD coverage.

Discussion: Several steps will likely be effective in improving BD coverage: strengthening training and supervision among health workers and officers, educating caregivers on the benefits of the BD and delivery in health facilities, improving vaccine management, and improving data quality. Considerable effort and leadership will be needed to achieve these steps.

© 2015 Published by Elsevier Ltd.

1. Introduction

Papua New Guinea (PNG) has very high endemicity for hepatitis B, with a population seroprevalence of >10% [1–6]. To address this problem, hepatitis B vaccine was introduced in the national infant immunization program in 1992. To prevent mother-to-child hepatitis B transmission, a hepatitis B birth dose (BD) was added to the immunization schedule in 2005. The schedule for hepatitis B infant vaccination in PNG is within 24 h of life (BD), and at 1, 2 and 3 months of age.

In 2013, the BD coverage was 37%, among the lowest in the Western Pacific region, while the reported three-dose coverage was 68%, the second lowest in the Western Pacific region. Given the high prevalence, timely BD is a critical strategy for reducing mother-to-child transmission. A 2012/2013 national serological survey among 2,109 children aged 4–6 years found an overall hepatitis B surface antigen (HBsAg) prevalence of 2.3% with considerable regional variation [7]. Improvements are needed in timely BD (administered within 24 h after birth) coverage to effectively control hepatitis B in PNG and achieve the Western Pacific Regional goal to reduce the prevalence of chronic hepatitis B infection to <1% among 5-year-old children by 2017 [7].

Achieving high hepatitis B BD coverage is challenging. In PNG, 60% of babies are not born in health facilities and are therefore

* Corresponding author.

E-mail address: yungching.lin@gmail.com (Y.-C. Lin).

difficult to reach for BD vaccination [8]. Even for babies born in health facilities, many factors lead to low BD coverage, including poor infrastructure and lack of clear policies and human resources. The structure of the health system in Papua New Guinea includes the national department of health, and public health offices at the provincial and district levels. Hospitals and health facilities are either government or mission run. Health facilities are generally run by either nurses or community health workers who receive two years of training and can give injections. At the village level there are village health volunteers who are supervised by health facility staff and provide basic first aid and health education in villages and homes.

Improving hepatitis B BD coverage in PNG requires a comprehensive understanding of the current vaccination program status. However, little data exist. We conducted this research to gather data on the BD vaccination practices in PNG, including BD vaccination practices in hospitals, health centers, private clinics, and homes; the barriers and enabling factors for health workers and mother/neonates in providing and receiving BD within 24 h; BD data recording and use; and knowledge and practice of mothers related to childbirth and BD vaccination. The research aims to provide supporting data for developing strategies to improve timely BD vaccination coverage in PNG.

2. Material and methods

2.1. Sample selection

In the 22 provinces in PNG, there are 22 provincial hospitals, 14 district hospitals, and about 698 public health centers. The private health sector is poorly developed.

The study sample was intended to capture the performance of the program across the country, including both high and low hepatitis B prevalence areas. To identify potential factors associated with hepatitis B prevalence, we selected five provinces with high sero-prevalence of HBsAg and five with low sero-prevalence based on the 2012/2013 national hepatitis B sero-survey. The 10 selected provinces for the assessment were: Autonomous Region of Bougainville, West New Britain, Milne Bay, Gulf, Northern, East New Britain, Central, Enga, Hela, and National Capital District. The population of the selected provinces comprised 42% of the national population according to the latest census data in 2011 [9].

Within each selected province the sample included the provincial and district Expanded Program on Immunization (EPI) officers, the provincial hospital, nine randomly selected health facilities, the village health volunteers and caregivers within the catchment areas of the facilities. At each selected health facility, one health worker, one village health volunteer, and a convenience sample of five mothers with infants <1 year of age were selected.

2.2. Data collection

The interviews and data collection were performed by 20 trained data collectors, with at least 10 from the selected provinces, and 4 supervisors during November–December 2014. All interviews were conducted using standardized questionnaires. The survey questionnaires were pretested in two health facilities that were not included in our final assessment. Local data collectors could generally speak the local language. In order to minimize language barriers, a local resident who could speak both English and the local language was asked to assist in the interview when the data collector did not speak the same language as the respondent.

EPI officers were interviewed regarding hepatitis B vaccination management, staff training, supervision, and coverage monitoring.

Health workers were interviewed regarding the provision of hepatitis B BD, places of BD vaccination, BD vaccination policy, vaccine management, staff training and supervision, community outreach services, and vaccination data recording and reporting practice. Village health volunteers were interviewed to understand their knowledge and practice regarding BD vaccination in the communities. Mothers of infants <1 year old were interviewed to assess their knowledge and practice related to delivery, BD vaccination and antenatal care visits.

Data were also collected on the monthly numbers of deliveries and the number of hepatitis B BD administered in the national health information system (NHIS) from January to October 2014 for each health facility.

2.3. Data analysis

2.3.1. Descriptive analysis

One-way frequencies were performed for all variables. We calculated timely BD coverage by dividing the number of timely birth doses administered by the total number of deliveries between January and October 2014 according to the NHIS records, by facility level and by province.

2.3.2. Analytical analysis

We compared the major provincial hospitals that installed vaccine refrigerators in 2011 with those that did not in terms of the increase of average hepatitis B timely BD coverage from 2009 to 2013.

We dichotomized the health facilities into two groups by the median of coverage: those with lower timely hepatitis B BD vaccination coverage (<30%) and those with higher coverage ($\geq 30\%$). We compared these two groups in terms of the knowledge, attitudes and practices of health workers and the vaccine management and outreach services of the facilities, through calculation of odds ratios (OR) and their 95% confidence intervals (95% CI).

We compared the caregivers whose children received a BD with those whose children did not in terms of caregivers' knowledge, attitudes and practices regarding BD through calculation of OR and their 95% CI. Caregivers in the catchment area of health facilities not providing BD were excluded from these analyses.

Questionnaire responses were double-entered and checked using EpiData, version 3.1. Any inconsistencies were corrected by referring to the original completed interview form. Data were analyzed using Stata, version 12.1. The significance level was set at 0.05.

2.4. Ethical approval

This research was approved by ethical review committees of the World Health Organization Regional office for the Western Pacific Region and of the National Department of Health in PNG.

3. Results

3.1. Survey implementation

Due to insecurity, we replaced Hela Province with neighboring Southern Highlands Province. Some selected health facilities were not accessible and were replaced with other facilities. In total, 346 caregivers, 21 EPI officers, 86 health workers, and 22 village health volunteers were interviewed. NHIS records from 83 health facilities and 9 provincial hospitals were reviewed (Table 1).

Download English Version:

<https://daneshyari.com/en/article/10963021>

Download Persian Version:

<https://daneshyari.com/article/10963021>

[Daneshyari.com](https://daneshyari.com)