

**Knowledge, perceptions and behaviour of vaccine clinic attendees
on DMR hepatitis B vaccination**

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A clinic-based study on knowledge and perception of vaccine clinic attendees on hepatitis B vaccination was undertaken at the Department of Medical Research vaccination clinic from June to September 1998. A total of 401 clinic attendees over 17 years of age were interviewed using pre-tested structured questionnaires by trained-interviewers. Majority of clinic attendees were found to be middle-aged. Sex distribution showed male preponderance with ratio of 3:2. Fifty seven percent of clinic attendees were graduates and 54% were government officers or business persons. The most frequent residences were found as nearest townships to the vaccination center such as Dagon and Mingalataungnyunt townships. Ninety four percent had awareness of correct schedule and course of the vaccination. One-third of them did not know correctly about the hepatitis B infection and one-fourth of them could not identify the true mode of transmission. They expressed favorable attitudes towards hepatitis B vaccination for infants and pregnant women. Sources of information revealed by clinic attendees on vaccination were media, health personnel and head of the families. Information from media was found reaching more to graduates, government officers and business persons in this study. 'Reliability of vaccine potency' and 'Being a government service clinic' were two main reasons for vaccination of attendees. This study indicates the problem of vaccination i.e. incompleteness of course. To increase awareness and vaccination practice of community, strategies need to be developed to establish similar vaccination centers in other areas of the country.

INTRODUCTION

Viral hepatitis type 'B' is hyper endemic in Myanmar with a 10% carrier rate and 60-70% infection rate around 1990s [1]. Since hepatitis B is highly infectious, has various modes of transmission and strongly associated with liver cirrhosis and hepatocellular carcinoma, it is one of the major public health problems [2]. Accidental transfusion or contamination with infected blood and blood products, infection from mothers to newborn babies and sexual relationships are important modes of transmission. As the natural course of the disease is serious, highly transmissible and incurable, prevention

plays a major role in control of the disease in community. Persons with high risk include spouses of acutely infected persons, sexually promiscuous persons, health care workers exposed to blood, persons who require repeated transfusions and, to a lesser extent, family members of chronically infected patients. However, the HB vaccine has markedly improved the ability to protect those persons with high risks of hepatitis B infection [2]. The vaccine produces protective antibody in over 90% of healthy adults who complete the course and is even more immunogenic in children [3].

In National Health Plan (NHP) (1996-2000), it was stated that the vaccination of all

newborns with hepatitis B vaccine is one of the main strategies for the control of viral hepatitis B infection. There are three main activities by NHP in the prevention and control of viral hepatitis to meet this strategic objective. Those are;

1. Scale up production of hepatitis B vaccine
2. Feasibility study for incorporation of hepatitis B vaccine into the UCI programme
3. Health education programme on hepatitis B.

Department of Medical Research (DMR) has successfully produced plasma-derived hepatitis-B vaccine, which has passed the WHO recommended tests for quality control and safety. Vaccine production is aimed to obtain in large scale. In the near future, hepatitis B vaccination will be incorporated in Expanded Programme of Immunization (EPI) [4]. In order to promote the utilization of Myanmar hepatitis B vaccination and to give the information to the community about hepatitis B infection and vaccine, it should be known about vaccination practice among people, influencing factors to get vaccination and problems and difficulties of vaccination in community. Since there was very few information about knowledge, perception and behaviour of hepatitis B and vaccination in Myanmar, this study explored baseline information about knowledge, perception and behaviour in relation with socio-demographic characteristics, aiming to suggest health authority to promote HB vaccination.

MATERIALS AND METHODS

It was a cross-sectional descriptive study. DMR, the only manufacturer of the HB vaccine in Myanmar, opened hepatitis B diagnostic and vaccination clinic charging optimum price i.e. 800 Kyats per dose. Since there were 50-100 persons per day

attending the clinic, data were collected at DMR HB vaccination clinic to be able to get enough sample size. During 1998 June to September, clinic attendees who came for vaccination, aged 18 and above and agreed to participate, were selected consecutively and interviewed using pre-tested structured questionnaire by trained interviewers. The questionnaire included identification, socio-demographic background, knowledge, reasons for coming, perceptions and behaviors and regularity of vaccination.

Data of 406 participants in total were analyzed using Epi Info after checking, entering, cleaning and validation. Univariate and bivariate analysis of knowledge, perceptions and vaccination practices as outcome variables using both single point and composite score were done. The associations with background variables were tested using z and Chi-square, Kruskal Wallis and ANOVA tests.

RESULTS

1. Socio-demographic characteristics

Most (52.9%) were 26 - 40 years old. Clinic attendees of 18 - 25 years old were found 24.7% of the total. Among the clinic attendees, 60% were male and 40% were female. Twenty five percent of vaccinees came from outside of Yangon city area. The rest (75%) were Yangon residents. Among vaccinees from Yangon area, most were from *Dagon Township* and *Mingala Taungnyunt Township*, which are nearest to the clinic. The clients with higher educational standard were found to be highest among all vaccinees. About 57% were *Graduates* and 33% passed their *high school education*. Remaining was *middle to illiterate*. Regarding occupation, 32.4% of clients were *the dependants*. Thirty-five percent were *government officers (including army personnel)*. About 19% were *business persons*. Forty-five percent were *unmarried* and 52% were *married*. Among the total attendees, 38% had family income of under 5000 Kyats per month and 18% had family

income over 25000 Kyats per month. Mean family size of clinic attendees was 5 ± 2 .

2. Factors concerning the vaccination of clinic attendees

2.1. Knowledge about Hepatitis B

Table 1 shows vaccinees' knowledge about hepatitis B and the vaccine.

Table 1. Knowledge about hepatitis B

Sr. No.	Questions	% Responses			Total
		Yes	No	Don't know	
1.	Is it a communicable disease?	91.3	3.0	5.7	100
2.	Are these its complications?				
	- chronic hepatitis?	55.4	15.0	29.7	100
	- fatty liver?	34.9	26.4	38.7	100
	- cirrhosis?	57.9	13.2	28.9	100
	- liver cancer?	65.6	8.5	25.9	100
	- liver abscess	28.9	26.2	44.9	100
3.	Are those its mode of transmission?				
	- using unsterilized needle and syringe?	95.5	2.0	2.5	100
	- by doing hand-shaking with infected person?	11.5	76.6	12.0	100
	- shared use of injection needles?	96.8	1.2	2.0	100
	- by sexual relation with infected person?	79.3	9.5	11.2	100
	- from pregnant mother to foetus?	67.5	5.5	7.0	100
4.	Do you know its risk behaviours?	78.1	21.9	0	100
5.	Are those the risk behaviours?				
	- smoking?	29.2	42.4	28.4	100
	- drinking?	41.2	30.9	27.9	100
	- using intravenous drugs?	72.8	3.5	23.7	100
	- sexual promiscuity?	69.1	5.7	25.2	100
	- frequently injection?	68.8	6.0	25.2	100
6.	Can the vaccination prevent the disease?	95.0	2.2	2.7	100
7.	Can the vaccination prevent all liver diseases?	32.2	48.1	19.7	100
8.	Is there any side effect in vaccination?	11.7	62.8	25.4	100
9.	Is HBsAg testing essential to do before vaccination?	95.8	1.7	2.5	100
10.	Correct knowledge of vaccination schedule.	94.3	4.4	1.2	100
11.	Correct knowledge about interval for booster dose (i.e. one injection at next 5 years).	52.1	10.7	37.2	100

Ninety-one percent of respondents knew that HB infection is a communicable disease. More than 95% of respondents knew correctly that using of unsterilized needles/syringes and shared use of needles were modes of transmission of hepatitis B infection. Eighty-eight percent of them knew that infection could be transmitted from pregnant mothers to foetus. About 55% of respondents knew the chronic hepatitis as a complication of hepatitis B infection, and, 58% knew that cirrhosis was a complication. Liver cancer was also expressed as the complication of hepatitis B by 65.6% of them. However, 35% of respondents misbelieved that the fatty liver was one of the complications of hepatitis B.

Regarding about risk behaviour for hepatitis B infection, 78% of respondents said that they knew about it very well. Majority of those who knew risk behaviours (72.8%, 69.1% and 68.8%) knew that using intravenous drugs, sexual promiscuity and frequent receiving of injections were the risk behaviours for hepatitis B infection. About 29% of them incorrectly knew that smoking was a risk behavior. Also, 32.2% of the clinic attendees wrongly believed that the vaccine could prevent all liver diseases. Among total clients, 94.3% could answer about the vaccination schedule correctly. Clients who knew when to return for a booster dose were 52%.

Knowledge answers were given scores according to their answers and added to the total score for each person. Correct answers were scored as two. "Don't know" answers were scored as 1 and wrong answers were scored as zero. Then the totals were calculated. It ranged from 0 to 29. Mean score was 12.6 ± 11.3 . Fifty-six percent of attendees got the score more than 13 and 44% got the score less than 13. There were no differences of mean knowledge scores among different age groups, sex, family income, per capita income groups and occupational groups except education groups. Among educational groups, "high

school passed" and "graduates" are found with higher mean knowledge score (i.e. 11.1 ± 11.2 and 13.7 ± 11.4) than lower level educational groups (i.e. 7.4 ± 9.6) ($p=0.022$).

2.2. Sources of information about hepatitis B vaccination

Many respondents (31.2%) expressed "mass media" such as radio/TV etc as a source of information about HB vaccination; 19% from *health personnel*; 18% from their family leaders. Those, who said that they got awareness about HB vaccination because of illness of one of their family members due to a liver disease, were 10%. Among those who got information from mass media, 42.1% of respondents were 'government officers'. That was found as a most frequent group among others. Among those who got information from family leaders, the most frequent respondents (i.e.32%) were 'skilled and unskilled workers'.

"Graduates" was 74% of the clinic attendees who were aware about HB vaccination from mass media having 2.8 times of "non-graduate". About 63% of clinic attendees, who had awareness due to existence of a liver disease in one of their family members, was "non-graduate" having 2 times higher than that of "graduate".

2.3. Attitude

As shown in Table 2, more than 75% of vaccinees agreed that everybody including infants, babies and pregnant mothers should be vaccinated. About 80% agreed that cost was not an important factor to be considered for vaccination. And also, 80% agreed that DMR HB vaccine was the safest among various vaccines. Those, who expressed that DMR vaccine was not expensive, were 64.8% of total. Only 21.5% thought that vaccination was necessary for their job promotion.

Table 2. Attitude towards the vaccination

Sr.No	Questions	% Responses			Total
		Agree	Neu-tral	Don't agree	
1.	Infants and under one babies should be vaccinated.	76.6	20.0	17.2	100
2.	Pregnant mothers should be vaccinated.	84.6	13.0	2.4	100
3.	Cost should not be an important factor to be considered.	79.8	5.2	14.9	100
4.	DMR HB vaccine is more expensive than others.	7.2	27.9	64.8	100
5.	DMR HB vaccine is safest among HB vaccines.	79.8	18.2	1.9	100
6.	My vaccination is essential for me to get job promotion.	21.5	4.0	74.5	100
7.	Everybody should be vaccinated.	96.7	1.7	1.4	100

Attitudinal answers were scored. Positive attitude towards the vaccination were scored two and the neutral attitude was scored two. The negative attitude answers were given zero score. Then, the totals were calculated. The respondents' attitude scores ranged between 0 and 29. They were grouped into (0-15) and (>15) as negative and positive attitudes towards vaccination. Ninety-four percent of vaccinees had positive attitude and 6.2 % of vaccinees had negative attitude. Like knowledge score, significant differences of mean attitude score were not found among groups of different age, sex, occupation, income and per capita income except education. Attitudinal scores were found increasing according to education level.

2.4. Decision making for the vaccination

Almost 80% of vaccinees made decision by themselves and 20% made decision by others. Among the total vaccinees, 91.4% of Government officers, 80.3% of business persons, 68.7% of high school passed and 89.6% of graduates made self-decision for their vaccination. Knowledge and attitude were found associating to their decision-

making status ($p=0.006$ and 0.03 respectively). Percentages of self-decision makers were higher in both groups with higher knowledge and attitude score than those with lower knowledge and attitude score (Table 3).

Table 3. Decision making among different knowledge and attitude groups

	Decision making		Total	Chi square (P-Value)
	self	others		
Knowledge scores				
- High	192	33	225	$\chi^2 = 7.49$
- Low	131	45	176	($P=0.006$)*
Attitude scores				
≤ 15	307	69	376	$\chi^2 = 3.6$
< 15	16	9	25	($P=0.05$)

2.5. Reasons for coming to DMR clinic

Reasons for coming to DMR clinic were also asked. Among the total attendees, 41.6% chose DMR clinic for the vaccination due to "reliable potency of the DMR vaccine". Thirty-two percent of the clients said that it was due to "being a government service clinic" (Table 4).

Table 4. Reasons for coming to DMR clinic (Multiple responses) (N=401)

No.	Reasons	Freq	%
1.	Cheap	58	14.5
2.	Accessible	75	18.7
3.	Reliable potency	167	41.6
4.	Being a govt. service clinic	128	31.9
5.	No alternative choice	46	11.5

About 26% of 'graduate clinic attendees' came to DMR clinic because 'it was a government service clinic compared to others (35% of the clinic attendees who passed high school level education and 54%

for those who had read/write to middle school level education). Vaccinees with higher-level education (i.e. 45.9% and 42.4%) relied the vaccine potency more than those persons with lower level education (i.e. 21.6%) ($P = 0.028$). However, lower education group more responded that they came to DMR clinic because of being a government clinic than higher education groups (54.1% of "up to middle school passed" Vs 35.3% and 26.4% of "high school passed" and "graduated" $P = 0.002$) (Table 5).

Table 5. Different reasons among different education groups

Reasons	% of clients who said "Yes"			χ^2	P
	R&W to Middle n = 37	High School n = 133	Graduate n = 231		
Cheap	16.2	13.5	14.7		
Accessible	10.8	18.1	20.4	1.96	0.374
Reliable potency	21.6	45.9	42.4	7.14	0.028*
Being a govt. service clinic	54.1	35.3	26.4	12.29	0.002*
No alternative choice	5.4	9.8	13.4	2.58	0.275

There were no differences among different occupational groups and their reasons why they came to DMR vaccine clinic (Table 6).

Table 6. Different reasons among different occupation groups

Reasons	% of clients who said "Yes"				χ^2	P
	Govt. officer n=140	Business n=76	Dependant n=130	Others n=55		
Cheap	14.4	14.5	15.4	13.0		
Accessible	20.0	22.4	19.2	9.3	4.0	0.3
Reliable potency	42.9	43.4	38.5	42.6	0.7	0.9
Being a govt. service clinic	28.6	30.3	35.4	35.2	1.8	0.6
No alternative choice	13.6	10.5	10.0	9.3	1.2	0.8

("Others" includes clerks, small shop owners, and staff of private company)

DISCUSSION

Majority (78%) of clinic attendees were found to be middle-aged (i.e. 18-40 years old). Age of 41-60 years took account for 22%. These findings indicate that the persons of productive and reproductive age groups have awareness and alert with the risks of hepatitis B, its consequences and benefits of the vaccination. Vertical transmission and sexual transmission rate will significantly reduce if high proportion of middle-aged people received the HB vaccine.

Finding showed that 57% of clinic attendees were graduates. Regarding their occupation, apart from dependants, government officers are predominant next to others. Two townships, which are near the vaccination center, were found to be the major catchment areas of the vaccinees. The presence of a vaccination center nearby may be important for people to get the vaccination. Since there were occupation and residency heterogeneity among clients, socio-economic factors, accessibility and feasibility may be related to the vaccination practice.

Among the clinic attendees, two-third of them knew about the nature of hepatitis B and its consequences correctly. Three-fourth of them also knew the mode of transmission correctly. Some (30%) expressed that smoking and drinking as risk factors for getting infection which were actually not. Regarding the sources of information, many clinic attendees got it from media or health personnel. Many vaccinees who got information from media such as TV, radio are found to be high-level educational persons and government officers. Thus, IEC programme in mass media needed to be focused for grass-root level. Health personnel should also try to give clients more precise, short and clear information which will enable to meet the information needs of less educated community.

Accessibility to vaccination center may be an important factor for their vaccination practice [5]. Most of the clinic attendees expressed that they came to DMR vaccine clinic because of availability of safe vaccine and accessibility to the clinic. Majority of clinic attendees have positive attitude towards vaccination. The findings that more than 75% had positive attitudes towards the vaccination of pregnant mothers and infants (Table 2) showed there were no major constraints in community for incorporation of HB vaccination into EPI programme. But 25% of attendees did not agree with the opinion of HB vaccination to infants. Attitudes were significantly associated with self-decision making for vaccination and intention of family vaccination. Plan for improving knowledge and changing attitude should target to low socio-economic groups.

CONCLUSION

Knowledge about the disease, awareness of vaccination practice and attitudes towards vaccination among people are important to get wider coverage of vaccination practices in the community. Health education programme on hepatitis B is one of the activities for getting wider coverage of vaccination in the country to control the spread of infection. Strengthening information and education programmes on hepatitis B needs to be conducted, targeting not only to the public, but also to the health workers. Different strategies for different socio-economic strata, such as media information for general public, periodical talks and articles for more educated and specific community should be designed for more effectiveness of the programme. Disseminating complete and thorough information through manuals and guideline booklets is essential for high-risk groups and vulnerable persons.

Vaccination centers, which are feasible and accessible to the general public, will be required to achieve higher HB vaccination

coverage. Those centers should also be extended synchronously with IEC programme, thus, people will get information about the risks of HB infection and preventive measures. At the same time, the risk persons will go to the clinics for vaccination. Based on the results, it can be assumed that clinic attendees were satisfied with the locally produced HB vaccine.

Recommendation

- There should be tried to find out the ways to reduce incompleteness of vaccination course among clients.
- Vaccination centers or clinics using DMR-HB vaccine should be established at General Hospitals, State & Divisional Hospitals, Township Hospitals and Health Departments and maternal and child health care centers.
- Health care personnel should do regular health talks and peer group counseling activities for improvement of knowledge and practice on prevention of viral hepatitis B.

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