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Issues in Vaccine Hesitancy in Malaysia: A Countering Approach

Abstract— Immunization has been introduced for decades to eradicate fatal infectious diseases by inoculating attenuated, killed or toxoid of microorganisms such as bacteria and virus. The triggering action to the immune system would not harm the host; despite can boost the immune responses to any infection. However, several cases of the eradicated infectious disease have re-emerged due to the existence of vaccine hesitancy group. Vaccine hesitancy has been observed emerging worldwide due to rejection in receiving vaccine. The main obstacle in vaccination program was identified according to the misconception that they received from internet or any mass media without boundaries. Various actions from the government have met the needs to enforce and educate the public especially the hesitant group towards better disease prevention with vaccination. The strategy would cover any interaction activities or programs with the public in transferring the information about the vaccination and its benefit to the health of herd community.

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1 INTRODUCTION

1.1 Scenario in Malaysia

Vaccination or immunization has been successfully implemented in tackling the global spread of some serious infectious diseases. The vaccine hesitancy had started since vaccination was first introduced by Jenner in 1800s in Europe against smallpox by using material obtained from cowpox lesions [1]. Similar rejection was encountered in United States in 1850s. However, in 1905, the US Supreme Court upheld the rights of some states to mandate the law of vaccination smallpox outbreak [2]. Thus, the phenomenon of vaccine hesitancy is not a new occurrence. Surprisingly, these hesitancy groups have emerged in both developed and developing countries. They may have received incorrect health messages through various news outlets and on the internet with no boundaries where these tools can vastly disseminate the wrong information to the general public. Vaccine hesitancy is defined as “a delay in acceptance or refusal of vaccine despite availability of vaccination services” by World Health Organization (WHO) [3,4]. Despite all the evidence showing the effectiveness and safety of vaccination in controlling preventable diseases, several controversial issues have been highlighted in the social media channels that provide confusing facts about vaccine to the public [5,6]. A study conducted by Mohd Azizi et al in 2017, had observed the vaccine hesitant group were mostly made up of pregnant women who were expecting their first child and unemployed parents. They obtained information on vaccination mostly from the internet and brochures [7].

Malaysia started the vaccination program in 1960 with the first vaccine, DPT (anti diphtheria, pertussis and tetanus vaccine) given to eradicate the three indicated diseases. This was followed by BCG (Bacillus Calmette-Guérin vaccine) to combat tuberculosis a year later [8]. Eleven years later, polio vaccine (OPV-oral polio vaccine) was introduced and in 1982 measles vaccine was intensively implemented, causing the incidence rate to drop significantly. Then in 1988 and 1989, the rubella, mumps and hepatitis B vaccines were supplemented into the Expanded Program on Immunization (EPI) [9]. There was a huge reduction in these infectious diseases cases. The death rate dropped approximately 85% from the year 1970 to the

year 2000. By 2015, in Malaysia immunization coverage was at 98.53% for BCG, 99.04% for DPT (third dose), 99.04% for Oral Polio vaccine (third dose), 93.07% for measles and 99.27% for hepatitis B (third dose) [10]. Globally, the immunization is able to prevent 2-3 million deaths from diphtheria, tetanus, pertussis and measles. Table 1 illustrates the current immunization schedule of the Ministry of Health of Malaysia [11].

In the most recent cases in 2016, Malaysia was intrigued by the death of two children with diphtheria in Malacca and Kedah. The cases were unexpected as diphtheria had been eradicated since a decade ago after vaccination program was introduced. Both cases had a similar root cause where the children did not receive a complete set of vaccination and they died because of infection complication. Since then, the Ministry of Health of Malaysia embarks upon numerous health programs, talks and forums to restore faith in current vaccine policies in order to confront with hesitancy towards accepting vaccination programs by some portion of the public.

Immunization has led to an enormous positive impact on the health of children and a great tool in embarking the public health issues worldwide. The public claims for more safety affirmations towards vaccination or immunization despite a wide array of safe and effective vaccines in use globally. The most frequent queries regarding the safety of vaccines are related to the active components in the vaccine and how these active components affect our innate immune system.

In response to this negative concept about immunization, the public should be educated on the role of a vaccine and how immunity is achieved. A vaccine is an attenuated, killed or toxoid extracted from bacteria or viruses that can trigger the immune system without harming body cells. The immune response to these antigens generates the production of antibodies specifically against the antigen. A group of memory cells are also produced which trigger a faster response to subsequent exposures to the same antigen. This will provide protection to the individuals that had been vaccinated [9]. Therefore, vaccine is the tool in the preventive medicine. The other main concern that drives the hesitancy among the public is the vaccine ingredients that might not be “halal” or prohibited to the Muslims. This is a major concern since Muslims comprise the majority of the population in Malaysia. It is noteworthy that no porcine, animal or human fetal cells are used in the current vaccine production. Research and development in Malaysia has generated and produced bovine gelatin that is certified halal that acts as a stabilizer in the vaccine. Nevertheless, the relevant Islamic Religious authorities have issued a fatwa or Islamic policy allowing the utilization of vaccine with porcine contents in a “dharurah” or emergency situation accordingly [12].

Vaccine is given subcutaneously that only presented with minimal side effect locally on skin with redness and fever. It was estimated with 7 million of doses given in Malaysia, only 0.02% of individuals developed minimal side effects that easily resolved within two weeks after injection. Furthermore, adverse side effects are constantly monitored by the National Centre for Adverse Drug Reactions Monitoring and the National Pharmaceutical Regulatory Agency. Up to now, there is no complaint on the side effects arising from vaccination [9]. One of the benefit of immunization program is providing herd immunity to the population, thus preventing an epidemic when any one individual is infected. The vaccination should not be stopped even though the disease has been eradicated and eliminated from the country. This preventive action controls the spreading of the disease even from one single infected person. Thus, global travel is rendered safer by reducing transmission of diseases especially into countries with less vaccine coverage.

There is the issue whether animal disease can be transmitted from the animal source used in the vaccine ingredients to the patients. The procedure in vaccine production requires five stages before being accredited by International Organization for Standardization (ISO) to ensure a good quality, effectiveness and safety to be used. The vaccine used by the Ministry of Health of Malaysia is registered under Drug Control Authority (DCA) of Malaysia before licensure and that long-term safety is monitored. The whole procedure involved the culturing on agar, purifications and attenuation processes before the clinical trial phases [9]. Phase I in clinical trials are conducted to evaluate the immune response triggered by the vaccine in order to validate the safety of a new vaccine. Phase II involves several hundred volunteers that belong to a disease-acquired group and a control group. During phase III, trials are purposely developed to evaluate the efficacy and safety of vaccine in

preventing the disease to tens of thousands of participants and to monitor the adverse effect arising from the usage of vaccine [13]. Thus the end product in vaccine production is purely the attenuated antigen without carrying any harmful substances to our body with these stringent steps of testing before licensure.

The vaccine hesitant normally has distrust to the health care professionals and the government whereby they preferably choose alternative or complementary medicine for their treatment. Alternative medicines that are available in Malaysia, such as homeopathy, acupuncture and cupping, are not able to replace the function of vaccine. Those medicines have different approaches and their benefits are mainly in maintaining good health for individuals [9]. A belief is further justified by the nutrients obtained from eating dates, nigella sativa, honey, olive, pomegranates and from many more of the blessed foods and fruits in Islam. The vitamins, minerals and anti-oxidants properties from these natural products do give the benefits to the general health compared to the vaccine generated to tackle the specific diseases whereby the need of vaccine is compulsory.

1.2 Countering the vaccine hesitancy issues

Inadequate health communication between the experts and the public is believed to contribute to vaccine hesitancy and misconceptions about vaccines. In an attempt to counter the vaccine hesitancy, several strategies must be well-planned to educate and improve confidence among them. These include adapting the specific political, social, cultural and economic contexts of countries to provide a comprehensive campaign on the merits and benefits of vaccination. There are three main parties that must work together towards this countering approach. They are the government, community and individuals. The strategies may be challenging to this wide spectrum of hesitant groups: some may accept all vaccines but refuse or delay of certain vaccine; some may refuse all vaccines for their misperceptions and low vaccination intentions. The health care professionals have to build trustful and respectful relationship with parents who refuse vaccination by articulating the information about the benefits, minimal risks of vaccinations and the consequences if vaccination is not applied. This strategy can be approached through an interactive forum between the health care professionals and the public where this platform can help remove the misconceptions with an appropriate clarification.

2 CONCLUSION

This mini review emphasizes on the current scenario of vaccine hesitancy in Malaysia with the misconception and misperception on vaccination. They gathered the information mostly from mass media that disseminate the wrong information. Therefore, any countering approach should embark upon strategies that help disseminate correct information on safety and benefits provided by vaccination to counter the misconception and misperceptions held by the hesitant group.

CONFLICT OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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Table1: Immunization Schedule in Malaysia, 2017

Immunization	Age (Month)										Age (Year)		
	0	1	2	3	5	6	9	12	18	21	7	13	15
BCG	Dose 1												
Hepatitis B	Dose 1	Dose 2				Dose 3							
DTaP			Dose 1	Dose 2	Dose 3				Booster				
Hib			Dose 1	Dose 2	Dose 3				Booster				
Polio (IPV)			Dose 1	Dose 2	Dose 3				Booster				
Measles						Sabah only							
MMR							Dose 1	Dose 2					
MR											Booster		
DT											Booster		
HPV												Females only	
Tetanus													Booster
JE (Sarawak)							Dose 1			Dose 2			

Footnotes: BCG (Bacillus Calmette–Guérin), DTaP (Diptheria, Tetanus, accellular Pertussis), Hib (Haemophilus influenzae b), IPV (Inactivated Poliovirus), MMR (Mumps, Measles, Rubella), MR (Measles, Rubella), DT (Diptheria, Tetanus), HPV (Human papillomavirus), JE (Japanese Encephalitis). Source from http://www.myhealth.gov.my/jadual-imunisasi/

REFERENCES

[1] Wolfe RM, Sharp LK. Anti-vaccinations past and present. BMJ 2002; 325 (7361): pp. 430-432.

[2] Omer SB, Salmon DA, Orenstein WA, de Hart MP, Halsey N. Vaccine refusal, mandatory immunization, and the risks of vaccine-preventable diseases. N Engl J Med 2009: 360 (19): pp. 1981-1988.

[3] Wolfe RM, Sharp LK. Anti-vaccinations past and present. BMJ 2002; 325 (7361): pp. 430-432.

[4] World Health Organization. Immunization, Vaccines and Biologicals. Geneva: SAGE Working Group Dealing with Vaccine Hesitancy. 2012.

[5] Salmon DA, Dudley MZ, Glanz GM, Omer SB. Vaccine Hesitancy: Causes, consequences, and a call to action. Am J Prev Med 2015; 49 (9 Suppl 4): pp. S391-8.

[6] Luigi RB, Giovanni C, Claudia C, Gaetano MF, Giuseppe G, Carlo S, Davide V, Franscesco V. Communication about vaccination: A shared responsibility. Hum Vacci Immunother 2016, Nov; 12(11): pp. 2984-2987.

[7] Rosselli R, Martini M, Bragazzi NL. The old and the new: vaccine hesitancy in the era of the Web 2.0. Challenges and opportunities. J Prev Med Hyg 2016; 57: pp. E47-E50.

[8] Mohd Azizi FS, Kew Y, Moy FM. Vaccine hesitancy among parents in a multi-ethnic country, Malaysia. Vaccine 2017 May 19; 35(22): pp. 2955-2961.

[9] Malaysian Peadiatric Association. Positive Parenting, Major Vaccines Breakthrough in History. Malaysia: 2013; pp. 8.

[10] Suhazeli A. Vaksin untuk bayi anda: Mitos vs Realiti. 3rd Edition. Malaysia Kami Manegement. 2014.

[11] Ministry of Health Malaysia Health Facts, 2016, pp.18. www.moh.gov.my/images/gallery/.../KKM%20HEALTH%20FACTS%202016.pdf

[12] Ministry of Health. MyHEALTH. Bayi & Kanak-Kanak. http://www.myhealth.gov.my/jadual-imunisasi/

[13] Ministry of Health Malaysia & Department of Islamic Development Malaysia. Frequently asked questions on vaccine and immunization. Malaysia. 2015.

[14] Edwards KM, Hackell JM. The committee on Infectious Diseases, The committee on Practice and Ambulatory Medicine. Countering Vaccine Hesitancy. Pediatrics, 2016, Volume 138, Number 3, Sep; 138(3). pp.e20162146.