



## Review

## Outbreak of vaccine-preventable diseases in Muslim majority countries



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## ABSTRACT

The increase in Muslim parents' refusal and hesitancy to accept childhood vaccination was identified as one of the contributing factors in the increase of vaccine-preventable diseases cases in countries such as Afghanistan, Malaysia and Pakistan. The spread of inaccurate and irresponsible information by the anti-vaccination movement may inflict more harm than good on Muslim communities. To curb this issue, health authorities in Pakistan and Malaysia have resorted to imposing strict punishments on parents who refuse to allow their children to be vaccinated. Information addressing religious concerns such as the halal issue must be made priority and communicated well to the general public, encouraging not only the acceptance of vaccinations but motivating communities to play an active role in promoting vaccination. Local government of the affected region need to work towards creating awareness among Muslim parents that vaccinations are a preventative public health strategy that has been practised and acknowledged by many doctors of all faiths.

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## Introduction

In recent development, several countries with majority Muslim populations have seen a sharp increase in the number of vaccine-preventable disease cases such as polio, diphtheria,

measles, tetanus and pertussis. In Pakistan, 91 polio cases were reported in 2013, a 57% increase compared to 58 cases reported in 2012 [1]. In polio-free countries such as Nigeria, cases were reported for the first time in two years, with cases of paralysed children reported in the northern Borneo state [2]. Measles outbreaks have been reported in Pakistan, Malaysia, Nepal, Egypt, Cameroon, Nigeria, South Sudan and Guinea. In the northern states of Nigeria, 3110 measles cases and 206 deaths related to measles outbreaks have been reported. In Egypt, in the first 10 months of 2015 approximately 5000 children were recorded as being infected

Abbreviations: WHO, World Health Organization; MMR, Mumps and rubella.

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with measles. Similarly, Malaysia measles cases have been reported to increase from 197 cases (2015) to 873 cases in June 2016 [3].

### Separating facts from myths

The increase in parents' refusal and hesitancy to accept childhood vaccination, especially among the more educated parents, was identified as one of the contributing factors in the increase of vaccine-preventable diseases cases. In Malaysia, the number of parents who refused to get their children vaccinated has almost increased three-fold, from 470 cases in 2013 to 1054 cases as of May 2015 [4]. In Selangor state the vaccine rejection cases raised from 637 (2013) to 1541 (2016) [5], a similar high trend of immunization rejection by parents was reported in Pahang state of Malaysia, where 178 refusal cases were reported in 2016 as compared to 84 in 2014 [6]. In Saudi Arabia, more than 80% of parents refused to give authorization to get their children vaccinated with influenza vaccine [7]. This phenomenon of vaccine refusal and its association with vaccine preventable diseases has also been recently reported in developed countries like United States, where approximately 70% non-vaccinated measles cases were vaccine eligible and religious concerns were a major reason [8]. In Malaysia, it was due to the misconception of parents towards the use of vaccines. It is viral on social media with news claiming that the vaccine is a plot to weaken Muslims, reinforcing the suspicion and mistrust of vaccines by parents [9,10]. Some wild speculation even suggests that vaccines are ploys intended to transmit diseases to non-Western communities [10]. Such belief gained more traction when a celebrity singer with a huge following in Malaysia and Indonesia openly declared his support for an anti-vaccination stance, posting "*Allah is all powerful, vaccines have no power*" on social media [10]. The spread of inaccurate and irresponsible information by the anti-vaccination movement may inflict more harm than good on Muslim communities.

### Dilemma of a halal-certified vaccine

Islamic law (*hukm*) prohibits the use of medicines or ingredients from haram sources; namely ingredients containing pig and its derivatives are not permissible. Narrated by Abu al-Darda from Book of Medicine (Kitab Al-Tibb) in Chapter 11,

*"The Prophet said: Allah has sent down both the disease and the cure, and He has appointed a cure for every disease, so treat yourselves medically, but use nothing unlawful."*

Parents believed that vaccines are contaminated with DNA from pigs, making the vaccines not permissible, or haram for Muslim families. Likewise, there have not been any halal-certified vaccines available globally. In Muslim majority countries such as Malaysia, studies have found that the halal status of vaccine is the most vital factor in considering whether to accept it or not [11,12].

However, in cases of dire (Arabic language termed as *dorurah*) and necessary circumstances which are recognised by the Islamic law (Shariah law), necessity overrules prohibitions. In circumstances where no available halal sources or options are effective in treating the disease, the *hukm* becomes permissible (termed *harus* in Arabic), for instance in vaccination. The Fatwa Council in Malaysia and internationally have ruled that vaccination is permissible for the purpose of treatment and prevention, and refusing vaccinations will result in greater harm. In addition, the European Council of Fatwa and Research rules that if the amount of porcine sources is insignificant, almost negligible in the vaccine, then it is too small to make any difference [13]. In addition, the World Health Organization (WHO) for the Eastern Mediterranean reported that porcine sources have been altered sufficiently into

another substance, changed in characteristics and changed from impure substances into pure substances that are permissible for observant Muslims [14].

Recently, the Malaysia Halal Industry Development Corporation, in collaboration with a Saudi Arabian private startup, is building the world's first halal vaccine facility, which is expected to be operational in early 2018 [15]. It is important to ponder upon if the vaccine is cost-effective and able to reach a production capacity that could meet the demand of the Muslim population. Ethically it is not acceptable to promulgate the use of halal vaccine yet the manufacturers are not able to produce sufficient quantity of this life-saving drug.

### Action plan of the health authority

Authorities in some countries have resorted to imposing strict punishments on parents who refuse to allow their children to be vaccinated. For example in north-west Pakistan, parents have been jailed for refusing to give permission for their children to get polio vaccines, on charges of endangering public security [16]. The Malaysian government issued a press statement warning parents who refuse vaccinations for their children are placing those children's health at risk and possibly leading to an outbreak of an infectious disease. In fact, the Malaysian government regards it as a form of child neglect, and it is an offence punishable under the Child Act 2001, with those found guilty facing a possible fine of up to 20,000 Malaysian currency Ringgit (equivalent to 5000 USD) or a jail term of up to 10 years, or both. In fact, parents can expect heavier penalties in the coming months as amendments to Section 31 of the Child Act have been passed by the Parliament in May 2016, pending official publication [17]. Meanwhile, the 'No Jab, No Pay' law in Australia, effective since 1 January 2016, prevents parents who refuse vaccines from claiming childcare benefits [18].

Heeding the calls by the civil society to make vaccinations mandatory in Malaysia, the Ministry of Health has proposed to the Education Ministry to impose mandatory vaccinations to all school children. Currently, vaccination is not compulsory nor a requirement for school entry. The Ministry of Health provides a school-based immunisation programme through a comprehensive School Health Programme along with health education, health examination, treatment of minor ailments and dental health services [19]. The proposal will also bring forward the first and second doses of the measles, mumps and rubella (MMR) vaccine to 12 months and 9 months respectively, from the current 12 months and seven years. Children in the state of Sabah and Sarawak will be required to have their first dose of measles vaccine at six months (Sabah) and vaccination against Japanese Encephalitis at ten months (Sarawak) [20]. The hefty punishment in the Child Act 2001 for parents who refuse vaccinations for their children cannot be effectively enforced if vaccination is non-mandatory. In the absence of a mandatory vaccination ruling, prosecutors will face an uphill task to prove the element of child neglect in court.

Nevertheless, mandatory vaccination and punishment are ineffective in encouraging parents to vaccinate their children without extensive public education. The role of the media in disseminating inaccurate and anti-vaccination information, particularly on websites and social media, was found to be more powerful than pro-vaccination information [21]. Such unfounded ideology has slowly spread and been adopted by various Muslim communities around the world. Therefore, it is imperative for the relevant authorities to constantly educate the general public in order to promote awareness and to prevent inaccurate information from being spread. Information addressing religious concerns such as the halal issue must be made priority and communicated well to the relevant communities, encouraging not only the acceptance of

vaccinations but motivating communities to play an active role in promoting vaccination. Local governments need to work towards creating awareness among Muslim parents that vaccination is a preventative public health strategy that has been practised and acknowledged by many experts and trusted Muslim doctors.

To alleviate Muslim parents' worries about the halal status of vaccines, national and international Fatwa Councils has issued numerous fatwas to elaborate on the *hukm* of vaccination practices and immunisation, namely hepatitis B, measles, pertussis, diphtheria, tetanus, polio, meningococcal meningitis and human papilloma virus [22].

Although the onus of child vaccination lies on their parents, a concerted effort by all parties, namely the government, civil society and religious leaders (ulama) ought to be made to stop and reverse the current trend of vaccination refusal. Manufacturing of halal vaccine, although is underway, has not materialised. Furthermore, it is unknown in this stage if the proposed manufacturing plan could meet the demand of Muslim population worldwide. Therefore, health authorities in the affected countries need to restore public trust on the importance of vaccine and the health institutions involved with vaccinations.

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### Competing interests

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