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Influenza vaccine; single-dose prefilled syringe vaccine versus multiple-dose vaccine alternatives, which is better in medical economics view – a report from Thailand

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Abstract

The vaccination is an important preventive method against endemic infectious disease. The important consideration in mass immunization is the cost effective method for vaccination administration to the local people. Here, the authors performed a medical economics analysis to compare between the two alternative vaccination administration management for mass influenza vaccination based on the situation in Thailand, a tropical endemic country. Based on this study, it is clearly shown which one is more preferable alternative.
Keywords: Influenza, Vaccination, Medical economics

Introduction

Infectious disease is an important group of medical problems that can be seen worldwide. The vaccination is an important preventive method against endemic infectious disease. The important consideration in mass immunization is the cost effective method for vaccination administration to the local people (1). To choose the proper alternative method, the data from medical economics analysis is required. The assessment should be performed for each vaccination in each specific setting.

Here, the authors performed a medical economics analysis to compare between the two alternative vaccination administration management for mass influenza vaccination based on the situation in Thailand, a tropical endemic country. Based on this study, it is clearly shown which one is more preferable alternative.

Materials and Methods

This is a medical economics study. The two main available alternative influenza vaccines, which are different in dosage preparation, in Thailand, are compared in this report. The two mentioned alternatives are a) single-dose prefilled syringe vaccine preparation and b) multiple-dose vaccine (4 doses/vial) preparation. The cost of each vaccine alternative is referred to standard price listed in national drug list of Thailand. The chance of loss of vaccine in each alternative is used as the index for determination of effectiveness of the vaccine alternative. The chance of loss in this study is referred to the local report by Bureau of Information, Thai Ministry of Public Health (2). The effectiveness in this report is assigned as "1 – chance of loss". The cost effectiveness was finally done to compare between both vaccine alternatives. The research followed the Tenets of the Declaration of Helsinki.

Core tip

Based on our analysis, the single dose preparation of influenza vaccine is more appropriate for mass immunization against influenza in Thailand.

Results

According to this study, the cost of each vaccine alternative is shown in Table 1. The effectiveness is also shown in Table 1. According to this study, the cost per effectiveness of alternative of single dose preparation is less.

Discussion

Influenza is an important respiratory virus infection. The disease can be seen worldwide and can cause mortality in the risk population such as the elderly and ones with underlying personnel illnesses. In Thailand, influenza is endemic and the local government declared the public health policies to give free mass influenza vaccination to the risk group in order to decrease the burden due to

Table 1. Comparison between two dosage preparations of available influenza vaccine in Thailand

Dosage preparation	Cost (USD)	Effectiveness (%)	Cost per effectiveness (USD
Single dosage	3.30	100	3.30
Multiple dosage	3.28	75 - 85	3.86 - 4.37

influenza (3).

The present report uses the concept of medical economics assessment to select for the appropriate option. The main concern in this report is on the alternative dosage preparation of the influenza vaccine. The single dose preparation of the vaccine is usually designed as a new preparation to correspond to the problem of vaccine loss in case of multiple dose preparation. In the previous report by Lee et al, the single dose preparation of measles vaccine in Thailand is proven more cost effective than the ten-dose preparation (4). Similarly, the present report also shows that the single dose influenza vaccine is more cost effective in our setting, Thailand.

Conclusion

Based on our analysis, the single dose preparation of influenza vaccine is more appropriate for mass immunization against influenza in Thailand.

Authors' contribution

Both authors wrote the manuscript equally.

Conflicts of interest

The authors declared no competing interests.

Ethical considerations

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

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