UNIT NO. 1

# PREVENTIVE HEALTHCARE: THE ROLE OF VACCINATIONS IN ADULTS

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## ABSTRACT

**In the past few years, numerous opinion articles and recommendations from several agencies, emphasising on the need to strengthen adolescent and adult immunization, have been published in the USA. In Singapore, we do not have such recommendations, but those from the USA are instructive and worthy of discussion. In adults, evidence supported vaccines – such as influenza and pneumococcal vaccines that have been recommended for the elderly for many years – have not been routinely administered and take up rates have been reported at lower than 70%. This is in spite of abundant data that influenza and pneumonia are leading causes of deaths in the elderly, and that medical intervention with vaccines has shown a significant beneficial impact. Hitherto, societal costs of vaccines have been related to treatments, vaccinations and lost productivity due to disease. We need also to include the additional specific benefits, such as the positive effects of "herd immunity" which interrupts the spread of the infection in the community, and long term benefits in reducing selected malignancies, such as Hepatitis B vaccine and hepatocellular carcinoma. In patients who were hospitalised for community acquired pneumonia, prior pneumococcal immunisation was associated with reduced mortality, complications, and length of stay; prior influenza immunisation was associated with improved survival in hospitalised patients with community acquired pneumonia. To move forward in adult immunisation, we need to convince family physicians that these benefits are tangible and significant. Many medical societies and associations have made recommendations and clear guidance for action in the area of adult immunisation.**


**SFP 2007; 33(3): 8 - 9**

## INTRODUCTION

In the United States of America, tens of thousands of adults die and hundreds of thousands are hospitalised due to diseases that could have been prevented by vaccination. The cost of this health burden is estimated to be ten billion dollars annually in the US. In the past few years, there have been numerous opinion articles and recommendations from several agencies, including the Centres for Disease Control and Prevention, and the Infectious Disease Society of America, on the need to strengthen adolescent and adult immunisation in the USA. In Singapore, we do not have such recommendations, but those from the USA are instructive and worthy of discussion.

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## ADULT VACCINATION LEVELS

In essence, the lackadaisical attitude to adult immunisation is contrasted to the success of childhood immunisation. In childhood, immunisation levels are at record highs and vaccine preventable infections are at record or near record lows. When new vaccines are introduced and recommended for routine use in children, acceptance and coverage usually increase rapidly. On the contrary, in adults, evidence supported vaccines – such as influenza and pneumococcal vaccines that have been recommended for the elderly for many years – have not been routinely administered and take up rates have been reported at lower than 70%. This is in spite of abundant data that influenza and pneumonia are leading causes of deaths in the elderly, and that medical intervention with vaccines has shown a significant beneficial impact. What can we learn from the childhood immunisation experience that can be used to improve adult immunisation?

In the childhood immunisation programme, immunisation starts just after birth and there is a delivery system infrastructure to implement the programme. Upon school entry, there is a safety net to ensure catch up and continued immunisations. No such infrastructure exists for adult immunisation. In addition, financial barriers to successful implementation for adult immunisation are substantial. Without the financial support of government, employers, insurers, and the advocacy of physicians, we will lose an excellent opportunity in preventive medicine if we continue to ignore adult immunisation.

## ECONOMIC VALUES AND SOCIETAL BENEFITS

The economic importance of vaccines lies partly in the burden of disease that can be prevented and partly in the competition for resources between vaccines and other interventions. Therefore, resources used to provide health care are limited, and economic evaluations are used to assist in policy decisions. Very simply, interventions such as vaccines which produce a health benefit and also provide cost savings are, inherently, cost effective. However, other vaccines that produce health benefit but do not save costs are not cost effective. The decision in such instances depends on the willingness of society to pay for increased health benefits. Some of the vaccines that are given for travel fall into this category. Several new vaccines that have been recently registered for use in adolescents and adults (e.g. HPV, zoster vaccines) are expensive and they need to be subjected to cost effectiveness analyses.

In earlier analyses of the cost effectiveness of vaccines, "costs" were often divided into medical costs related to disease (medication, laboratory tests, consultations and hospitalisations) and costs relating to vaccines (vaccine price, costs of administering vaccine, and treating adverse effects). Societal costs were related to treatments, vaccinations, and

lost productivity due to disease. However, there are additional specific considerations for vaccines. These include the positive effects of "herd immunity", which interrupts the spread of the infection in the community, and the long term benefits in reducing selected malignancies such as Hepatitis B vaccine and hepatocellular carcinoma. Recently, other benefits have been reported. Spaude et al (1) reported that in patients who were hospitalised for community acquired pneumonia, prior pneumococcal immunisation was associated with reduced mortality, complications and length of stay. In a separate study, prior influenza immunisation was associated with improved survival in hospitalised patients with community acquired pneumonia. Therefore, these numerous potential benefits will need to be considered in cost effectiveness analyses before any recommendation can be supported by policy makers.

## CONVINCING FAMILY PHYSICIANS

The majority of the public is aware of the need for childhood immunisation. Paediatricians and family physicians are major advocates of immunisation and well baby visits form an important avenue to implement the childhood immunisation programme. Such "well adult" visits are uncommon and some family physicians themselves are skeptical on the need for such vaccines. Take the example of influenza and pneumococcal vaccines. They are not as effective as most childhood vaccines and the clinical manifestations of these infections are similar to syndromes caused by other infectious pathogens, that are not preventable by the use of these vaccines. Thus, it is not uncommon for physicians not to recommend them strongly for their patients. If we are to move forward in adult immunisation, we need to convince family physicians that these benefits are tangible and significant.

## RECOMMENDATIONS AND CLEAR GUIDANCE

Many medical societies and associations have made recommendations and clear guidance for action in the area of adult immunisation. For example, the policy principles promulgated by the Infectious Disease Society of America, i.e.:

1. increase demand for adult and adolescent immunisation by improving public and provider awareness;
2. strengthen health care system's capacity to deliver vaccines to adults and adolescents;
3. expand provision of vaccines to adults and adolescents in public and private health care insurance programmes;
4. promote adult and adolescent immunisation as an important measure of health care quality in managed care and other health care organizations;
5. assure adequate support for research regarding adult and adolescent vaccine preventable diseases and vaccines.

## CONCLUSIONS

Certainly, adult immunisation is an area of preventive medicine that family physicians can excel in. Hopefully, there will be leadership in the College to make this happen.

### REFERENCES AND FURTHER READINGS

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### LEARNING POINTS

- **The need to strengthen adolescent and adult immunisation is clear.**
- **Analysis of economic benefits of adult vaccines need to go beyond medical costs related to disease (medication, laboratory tests, consultations and hospitalisations), costs relating to vaccines (vaccine price, costs of administering vaccine, and treating adverse effects), and societal costs related to treatments, vaccinations and lost productivity due to disease. We need also to include the additional specific benefits such as the positive effects of "herd immunity", which interrupts the spread of the infection in the community, and long term benefits in reducing selected malignancies such as Hepatitis B vaccine and hepatocellular carcinoma.**
- **In patients who were hospitalised for community acquired pneumonia, prior pneumococcal immunisation was associated with reduced mortality, complications and length of stay; prior influenza immunisation was associated with improved survival in hospitalised patients with community acquired pneumonia.**
- **To move forward in adult immunisation, we need to convince family physicians that these benefits are tangible and significant.**
- **Many medical societies and associations have made recommendations and clear guidance for action in the area of adult immunisation.**