AUGUST 2019

Adult Vaccination in the Asia Pacific

MOBILIZING POLICY AND PRACTICE KNOWLEDGE

IFA
INTERNATIONAL FEDERATION ON AGEING
Global Connections

VACCINES 4LIFE

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The International Federation on Ageing Vaccines4Life (V4L) Program envisions a world in which healthy ageing and functional ability of older adults are maintained and ill health prevented through widespread adult vaccination uptake. V4L strives to build and gather evidence and mobilize knowledge, experts and expertise toward influencing and shaping policy related to vaccination, ageing and at-risk groups. A critical component of this is bringing together individuals across unlike sectors for important deliberations such as the 'Adult Vaccination in the Asia Pacific: Mobilizing Policy and Practice Knowledge.'

The IFA would like to acknowledge and express sincere gratitude to delegates for their vital contributions to the expert meeting that informed this report.

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The IFA expert meeting "Adult Vaccination in the Asia Pacific: Mobilizing Policy and Practice Knowledge" and resulting report were made possible by an unrestricted educational grant from Pfizer.

FOREWORD

Population ageing is a global phenomenon with serious social and economic opportunities as well as challenges. In the Asia Pacific region, this trend is evident. Among Asia-Pacific Economic Cooperation (APEC) countries, 11.2% of the population is 65 years or older though country-level demographics vary considerably. Japan, for example, has the greatest proportion of older adults in the world with 27% of the population aged 65 years and over. Meanwhile only 4.8% of the population is within this age demographic in the Philippines.

Older adults around the world are critical for the livelihood and productivity of societies as is consistently acknowledged in many countries within the Asia Pacific region. A life course approach to immunization belongs in a comprehensive public health strategy that can help facilitate healthy ageing and an environment that enables older people to do what they value.

"Adult Vaccination in the Asia Pacific: Mobilizing Policy and Practice Knowledge" reflects the discussions held by experts and thought leaders from government, academia, industry and civil society in the six countries represented at the meeting on the barriers (and good practices) to improving adult vaccination uptake rates. Improved surveillance and data collection, education and raising awareness, government-driven public health policy and attention to at-risk groups are four priority areas for policy development and action.

Sincerely,

Dr Jane Barratt
Secretary General
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1. INTRODUCTION

The Asia Pacific region contains over half the global population and is home to some of the most populous countries in the world.[1] The region is epidemiologically, politically and economically diverse – comprised of high, middle and low-income countries.[2] It is also on track to become one of the oldest in the world with many governments experiencing significant social and economic challenges inherent with older populations.[3] Thus, one of the most important public health questions of our century is how to grow social, healthcare and economic systems alongside, and in support of, ageing populations,[3] that can maximize healthy life expectancy and therefore the contribution and wisdom of older people.[4]

Promoting effective health decisions such as adult vaccination can help to place older people in a positive position to live healthily. Immunization is widely considered one of the greatest medical achievements of modern civilization,[5] and in more recent times there has been a call for a life course approach to vaccination with attention to the impact of vaccine preventable diseases (VPDs) in later life. Yet, there are both challenges and opportunities associated with building or strengthening an adult vaccination platform. There is a pressing need for discussion in the Asia Pacific region of new opportunities for vaccination for adults, as supported by the World Health Organization's (WHO) recent shift to a life course approach to immunization.[6]

> One of the most important public health questions of our century is how to grow social, healthcare and economic systems alongside, and in support of, ageing populations.
>
> Phillips, D. R. (Ed.). (2002).

In recognition of this need the 'Adult Vaccination in the Asia Pacific: Mobilizing Policy and Practice Knowledge' expert meeting brought together interdisciplinary experts championing increased vaccination uptake from Australia, Hong Kong, India, Japan, Singapore and Taiwan. The overall goal of the meeting was to improve uptake rates of adult vaccination in the Asia Pacific region, through bettering the understanding of how current policies and practices from countries can be improved.

2. CONTEXTS OF AGEING AND VACCINATION IN THE ASIA PACIFIC

2.1 Older adults' social and economic roles

Globally, older adults contribute to the livelihood and productivity of societies and arguably, their social and economic contributions are among the greatest in many countries within the Asia Pacific. A study conducted in Chennai, India found that due to the region's combined factors of age discrimination, poverty and insufficient pensions, low-income adults are forced to work to late old age.[7] The range in employed positions older people in this region undertake is considerable and includes vendors, cleaners, cooks, construction workers, repairers and security workers.[7] This work may also take the form of contributions to family businesses and often goes unrecognized.[7] For example, in street markets, older adults will take on 'helper' roles for their family's businesses; roles that can be both substantial and unpaid.[7] Additionally, older adults, often women, will assume unpaid roles in housework and childcare.[7]

Ageing can affect these important contributions when the individual is not given the chance to age healthily and the impacts can be felt in businesses. Upon the injury, illness or death of a family's older adults, businesses reliant on their older adult's contributions may face closure.[7]

2.2 Changing demographics

The global population is ageing as numerous countries experience reduced fertility and increased life expectancy.[8] This is most pronounced in Europe and North America where 25% and 22% of the population, respectively, is 60 years or older.[8] In other regions the rate of population ageing is quite different with 5%, 12% and 12% of the population aged 60 years and over being in Africa, Latin America and the Caribbean respectively.[8] The Asia Pacific region is characterized by significant

Among Asia-Pacific Economic Cooperation (APEC) countries,

11.2%

of the population is 65 years or older.

Asia Pacific Economic Cooperation. (2017).

variation among its countries with respect to age demographics. In Japan, 27% of the population is 65 years or older, compared with Indonesia and the Philippines where 5.3% and 4.8% is of the same population, respectively.[9] Among Asia-Pacific Economic Cooperation (APEC) countries, 11.2% of the population is 65 years or older.[9] A staggering projection is that by 2050 in all regions with the exception of Africa, nearly 25% or more of the population will be 60 years or older.[8]

2.3 Importance of a life course approach to immunization

Vaccination is usually framed as a childhood intervention, however, recently, a life course approach to vaccination has been adopted among health organizations, including within the WHO.[6] A life course approach is not only important for healthy ageing, but also contributes to poverty reduction, provides economic benefits and offers protection during anthropogenic climate changes.

A life course approach supports healthy ageing as older adults are at greater risk of acquiring VPDs. One reason for this is immunosenescence, which is the decline in immune system function with age.[10,11] A second reason relates to chronic disease. Older adults suffer higher rates of chronic disease, which can increase risk of certain VPDs as well as worsen disease outcomes.[12,13] As a result, health agencies, such as the Centers for Disease Control and Prevention recommend certain vaccines for adults with various chronic conditions.[14] A third reason older adults are more at risk of VPDs is malnutrition as it can reduce function of the immune system.[10,15] Malnutrition among older adults presents across the globe, including within countries in the Asia Pacific region.[16,17] For all of these reasons separately and collectively, VPD prevention is crucial for healthy ageing, to which immunization plays an important role.

A life course approach supports healthy ageing as older adults are at greater risk of acquiring VPDs.

A life course approach to vaccination can contribute to poverty reduction. Influenza is associated with bed confinement, missed work and reduced effectiveness upon return to work after illness[18] and so vaccination against influenza may help reduce missed workdays and may help maintain productivity levels especially among populations with greater susceptibility to influenza, such as older adults. In a study of working older adults, Nichol et al (2009) found that receiving the influenza vaccine

was associated with reduced days of illness, fewer workdays missed and reduced impaired performance at work.[19] Maximizing days at work can be critical for lower income older adults who lack paid sick leave. For these adults, vaccination can act as a poverty intervention strategy through increasing earning potential by reducing illness and therefore facilitating maximized workforce participation.

A life course approach can also offer protection in a changing climate.

Vaccination programs require considerable front-end investment; however, economic evaluation studies have shown adult immunization programs to be cost-effective in countries within the Asia Pacific. Wen and Chang (2014) evaluated the economic benefits of the 23-valent pneumococcal polysaccharide vaccine among older adults in Taiwan and found a yearly cost-savings of 2.75 million USD when considering the benefits of averted medical costs and other pneumonia-related costs.[20] Cook et al. (2009) evaluated the economic benefits of a typhoid vaccination strategy targeting adults and eligible school children in India and found it would be considered 'very cost-effective'.[21] This study considered costs of illness avoided through vaccination as well as wider societal benefits. As this economic evaluation demonstrates, vaccination provides economic benefits beyond direct healthcare cost savings. Benefits can also be realized through averted missed workdays for individuals and caregivers, reduced outbreak management costs, increased productivity in workplaces, increased tourism, greater foreign investment,[22] as well as benefits more difficult to quantify including averted fear, pain and suffering.[20]

Given the increased susceptibility of older adults to infectious disease, climate change may have amplified impacts on disease rates in this population.

A life course approach can also offer protection in a changing climate. Rising temperatures and changing rainfall patterns caused by anthropogenic climate change may lead to increased transmission of vector-borne infectious diseases such as malaria, dengue and schistosomiasis.[23] This is predicted in regions across the globe, including within the Asia Pacific, specifically South East Asia and the Western mountainous region of China.[22] Rising temperatures, reduced water availability, drought and increased rainfall have been associated with diarrhea rates in Pacific Island countries.[24] Pakistan, a country that already faces high

rates of malaria, TB and polio, has experienced increased flooding.[25] Infectious disease impacts of this flooding have included acute diarrhea and acute respiratory infections.[26] Given the increased susceptibility of older adults to infectious disease, climate change may have amplified impacts on disease rates in this population. Chan et al. (2019) acknowledge the increases in disasters associated with climate change in Asia and call for evidence around risk reduction strategies.[24] Pre-emptive vaccination plans targeting older adults, in combination with climate change action, could be one such risk reduction strategy.

3. BARRIERS TO ADULT VACCINATION IN THE ASIA PACIFIC

Each country in the Asia Pacific region faces challenges and barriers to increasing adult vaccination uptake rates. In the current climate of globalization, where health determinants, risks and consequences are not geographically confined, health policies often have local, regional and global implications.[3] Recognizing and addressing the barriers are therefore essential to building capacity for improvement within and across countries in the Asia Pacific region.

3.1 Cost

Factors associated with uptake of pneumococcal vaccine included higher household income and higher education level.

Pacific Prime. (2019).

A key barrier to adult vaccination in the Asia Pacific region is cost both at the individual and government level. With respect to the individual, vaccination coverage in India is lowest among those with a family income of <50,000 INR/month, and among individuals with parents who have an education level of high school or below.[27] India's Universal Immunization Programme (UIP) covers eight vaccinations, however primarily only for children and pregnant women.[28] Similar to India, a Singaporean study found that factors associated with uptake of pneumococcal vaccine included higher household income and higher education level.[29] In Singapore, vaccinations are not publicly funded,[30] which, as the study illustrates, is a major barrier to vaccination in the country.

Governmental costs associated with vaccine acquisition is a primary barrier in the development and implementation of a comprehensive life course vaccine schedule that also involves delivery and surveillance.[31,32] Low and middle-income countries in the Asia Pacific region are less likely to have comprehensive healthcare services due to fewer resources that can be attributed to health and long-term care services.[33] The vaccination supplies and infrastructure that do exist are largely targeted to children which has consequences on the health and functioning of older adults. A Singaporean study found that 85.5% of adults aged 50 to 59 years were protected from diphtheria compared with 99.1% aged 18 to 29 years.[34] Similarly, 61.5% of adults aged 50 to 59 years were protected against tetanus compared with 95.6% in adults aged 18 to 29 years.[34]

3.2 Lack of knowledge, misconceptions and doubts in effectiveness

Lack of knowledge surrounding adult vaccination is a key barrier to increasing uptake rates. Lack of education on the benefits of immunization are known factors for low uptake rates in Hong Kong,[35] whereas in Australia low rates are in part attributed to the belief that vaccinations are not necessary for adults.[36]

Misconceptions related to side-effects and VPD risk also exist. In an Australian study, reasons for not receiving the influenza vaccine among adults included "it brings on the flu/I may get the flu".[37] In a Japanese study among adults aged 60-69 years the belief of not being at risk of influenza and that if infected, it would not become severe was evident.[38] Conversely a study in Taiwan found that the "concern of adverse reactions" to the influenza vaccine was a dominant factor in the low rates.[39] Findings from a Singaporean study on the perceptions of healthcare workers on influenza vaccine suggested a number of converging factors such as the notion that the vaccine can cause influenza; feelings of invincibility; the idea that influenza is not serious and most concerning, poor awareness around the preventative value of health care workers being vaccinated as a method for patient protection.[40]

> In Australia low rates are in part attributed to the belief that vaccinations are not necessary for adults.
>
> Ridda, et al. (2009).

Doubts in vaccine effectiveness can also impact uptake. In the aforementioned studies conducted in Japan and Taiwan there

remained a general lack in confidence in vaccination effectiveness[37,38] as was suggested in the Singapore healthcare worker study.[39] Unfortunately, the data is not always conducive to positive public perception. The Centers for Disease Control shows seasonal influenza vaccine efficacy varies from 10% - 60%[41] which may also lead to loss of credibility among the public.

3.3 Fragmented and complex healthcare

Older adults can also experience fragmented health and social care especially for those with complex medical conditions requiring to see a number of specialists and ancillary workers.[42,43] Competing medical appointments and treatments, diminished resilience and for many older people the challenge of mobility and dependency on family and friends for transport to these appointments all contribute to low rates of adult vaccination. In the complexity of a health system, basic preventative healthcare such as vaccinations, difficulty tracking vaccinations, confusion and lack of awareness around vaccination history all contribute to the current situation.[41,42]

Competing medical appointments and treatments, diminished resilience and for many older people the challenge of mobility and dependency on family and friends for transport to these appointments all contribute to low rates of adult vaccination.

3.4 Data limitations

Monitoring adult vaccinations is a challenge. The lack of universal health records or vaccination registers to track the uptake rates of adult vaccination is not only a challenge in the development of good public health policy, it also leads to a gross underestimation of the problems and consequences on the individual and society.[44] As a consequence the administration and tracking of adult vaccination poses significant barriers.[43] Additionally, in some countries disease-specific data are limited. For example, in India, surveillance efforts for Japanese Encephalitis are hindered by limited diagnostic facilities in some regions.[45]

4. VACCINATION GAINS MADE IN THE ASIA PACIFIC

Despite the barriers, countries in this region have made considerable gains in vaccination policy and coverage, that policy makers and informers can continue to leverage as illustrated in this brief synopsis.

In Australia, the Childhood Immunisation Register was extended to a life course register, the Australian Immunization Register (AIR), in 2016.[46] This register is used for assessing immunization status, planning catch-ups and measuring vaccination coverage, among other uses.[45]

In Hong Kong, the government funds multiple vaccination programmes for older people including the Vaccination Subsidy Scheme, launched in 2009, which covers pneumococcus and influenza vaccinations for adults 50 and older.[47] The government also funds the Residential Care Home Vaccination Programme, launched in 1998, which covers influenza and (limited) pneumococcus vaccinations for staff and residents in Residential Homes for Elderly and Residential Care Homes for Persons with Disabilities and other select populations.[46] In recent years Hong Kong has seen an increase in influenza vaccination coverage among older people.[48]

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>
> The Legislative Council of the Hong Kong Special Administrative Region. (2018).

India's Universal Immunization Programme covers eight vaccines primarily for children and pregnant women.[27] In 2014, the government introduced a mass Japanese Encephalitis vaccination programme for adults in regions with high disease rates.[49] Though the coverage policies within this program are contested.[44]

In Japan, influenza vaccines are funded by the government for adults 65 years and older and for adults 60-64 years with specific chronic illnesses of certain degrees.[50] The government also provides subsidies for the 23-valent pneumococcal polysaccharide vaccine for older adults,[51] however both the immunization schedule[50] and the vaccine type[52] have been contested. Since a recent rubella outbreak among males aged 39 to 56 years, rubella vaccinations are available without cost until 2022

Taiwan's Centers for Disease Control has developed an Influenza Pandemic Strategic Plan which includes the influenza vaccine as one of the four strategies.

Centers for Disease Control Taiwan. (2012).

for those unvaccinated within this age group.[53]

Since 1998 the Taiwanese government has implemented a seasonal influenza vaccination strategy for all adults aged 65 years and older with specific conditions, and has since expanded to include all adults 50 years and older and other vulnerable groups.[54] Furthermore, Taiwan's Centers for Disease Control has developed an Influenza Pandemic Strategic Plan which includes the influenza vaccine as one of the four strategies.[55] Additionally, since 2007, a nongovernmental organization has provided funding for pneumococcal vaccination for adults 75 years and older.[56] Research suggests considerable improvements associated with the vaccination introduction including in invasive pneumococcal disease rates, death from invasive pneumococcal disease and pneumonia and in related hospitalizations.[57]

The Asia Pacific contains tropical climatic regions, some of which are conducive to year-round influenza activity[58] This can also have significant implications for influenza vaccination schedules particularly among older adults who experience immunity waning.[59] In consideration of this, Singapore-based research has been conducted on effectiveness of six-month influenza vaccine boosters among older adults[58] and has shown promising results.[60]

5. IDENTIFIED SOLUTIONS TO IMPROVING ADULT VACCINATION IN THE ASIA PACIFIC

The population in the Asia Pacific region is progressively ageing, however heterogeneity remains. Japan is the oldest country in the world, whereas countries such as India and China, while being younger, are the densest in the region. Despite gains in the rates of vaccination in some but not all countries, whether it be for childhood vaccinations or adults, the barriers to a comprehensive vaccine schedule as an essential element of a public health program, remain significant, as are the social and economic consequences. For barriers to be addressed and a life course approach to immunisation

be implemented, good practices must be shared while at the same time specific issues addressed.

5.1 Improve surveillance and data collection

Significant gaps in data systems, including the collection and the interpretation of information required to develop coherent and meaningful policy for all ages is a real and tangible barrier in all countries in the region. Aside from data on disease and vaccination few countries have the capacity, capability or the regulatory approval to collect essential data on citizens over the age of 65 or 70 years. This fact in itself is a tremendous barrier to making the case to government on the return in investment for adult vaccination that contributes to healthy older people being autonomous and independent contributors to society (and family), as is the case in many countries in the Asia Pacific.

Few countries have the capacity, capability or the regulatory approval to collect essential data on citizens over the age of 65 or 70 years.

The Australian Immunization Register (AIR) is a relatively recent example of utilising data on vaccination uptake rates across the life course to improve coverage based on socio-demographic and geographic factors through targeted strategies.[45] While neighboring countries may not have the necessary infrastructure to build such registers there are lessons to be shared and improvements to be made.

Surveillance and data collection focusing on older adults can help to determine the harder to reach populations who are less likely to be vaccinated. Hard to reach groups such as those living in rural areas may, for example, require a special vaccination program provided by community service providers.[61]

5.2 Education and raising awareness

A lack of awareness of the importance and value of adult vaccination is a commonly reported issue worldwide, not only in the Asia Pacific region. The value of targeted awareness raising strategies can only be illustrated if developed with the intention of measuring change in knowledge and action.

Health care professionals are a key stakeholder group for continuing education programs as they have influence on the decision to immunize older people and people with chronic medical problems.[62] Vaccination education and tools for health care professionals should be developed in their places of employment, creating programs that cater to all those who are responsible for being knowledgeable on immunization. This education should be continuous and in conjunction with academic institutions to all students pursuing careers in health care.[63]

Awareness-raising strategies must also target those who are most at-risk to VPDs, such as older people and adults with chronic disease. In the past, attempts to improve vaccination rates through communication strategies focused on what information was given, rather than how to engage the target audience to improve perceptions of the value of vaccination.[64] If the person does not believe that a product or recommendation addresses a significant need, or offers benefits that are sought, acceptance will be low.[63]

> If the person does not believe that a product or recommendation addresses a significant need, or offers benefits that are sought, acceptance will be low.
>
> Nagata, et al. (2013).

Campaigns and awareness-raising strategies in the Asia Pacific region should focus on the knowledge, attitudes and behaviours of older adults to identify factor(s) the target group values regarding vaccination, in order to develop the most effective approach. Overlaying each of these facets is the unique nature and contribution of culture to the targeted strategies and dialogue.

An example of tailored strategies undertaken in the Asia Pacific region include Taiwan's Hotline 1922 program, which allows individuals to ask questions related to vaccination free of charge at any time.[65]

5.3 Government-driven public health policy

For adult vaccination uptake rates to improve, governments must be convinced of the return on investment through a convincing social and economic business case, emphasizing the importance

of data collection. This government buy-in is critical as efforts such as campaigns have little impact if governments fail to address systemic barriers.[66] For example, awareness raising strategies will have low impact if individuals cannot afford vaccines.[67] Other government driven policy on adult vaccination such as mandatory vaccination, or the inability to be employed without certain vaccinations also have the potential to increase adult vaccination coverage.[68]

> Government buy-in is critical as efforts such as campaigns have little impact if governments fail to address systemic barriers.
>
> Dwyer, et al. (2013).

Partnerships and intergovernmental dialogue within and between countries in the Asia Pacific region must be generated and supported to identify and address, together, systemic gaps in vaccination infrastructure and to share lessons for success.

5.4 Attention to at-risk groups

Policy makers, health care professionals, academics and other relevant vaccination advocates must recognize that certain groups, such as people with chronic diseases, older people and Indigenous people, face unique challenges to vaccination arising from systemic barriers and implicit biases both within and outside of healthcare services. Awareness campaigns, policies and programs may require tailoring to ensure they are accessible and acceptable to these groups.

6. CONCLUSION

The 'Adult Vaccination in the Asia Pacific: Mobilizing Policy and Practice Knowledge' expert meeting provided the platform for six countries to share knowledge on current Immunization policies and practices, acknowledge existing barriers to adult vaccination uptake and foster conversations on solutions to address the barriers.

In consideration of the ageing and vaccination contexts within the Asia Pacific such as older adults' social and economic roles, the changing demographics and the importance of a life course approach to immunization and bearing in mind the existing barriers and gains that can be further leveraged, the need for such dialogue in this region is crucial. This meeting showcased the solutions needed to deliver successful policies and how to help build the capacity of stakeholders in the region who are working to improve adult vaccination policies and practice. The identified solutions of improved surveillance and data collection, education and raising awareness, government-driven public health policy and attention to at-risk groups have the potential to mobilize positive change for adult vaccination.

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Published June 2019 © International Federation on Ageing 2019