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## Conference report

## Equity in disease prevention: Vaccines for the older adults – Proceedings of a workshop, Melbourne, Australia 20 June 2014

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## ABSTRACT

On the 20th June, 2014 the National Health and Medical Research Council's Centre for Research Excellence in Population Health "Immunisation in under Studied and Special Risk Populations", in collaboration with the Public Health Association of Australia, hosted a workshop "Equity in disease prevention: vaccines for the older adults". The workshop featured international and national speakers on ageing and vaccinology. The workshop was attended by health service providers, stakeholders in immunisation, ageing, primary care, researchers, government and non-government organisations, community representatives, and advocacy groups. The aims of the workshop were to: provide an update on the latest evidence around immunisation for the older adults; address barriers for prevention of infection in the older adults; and identify immunisation needs of these groups and provide recommendations to inform policy.

There is a gap in immunisation coverage of funded vaccines between adults and infants. The workshop reviewed provider misconceptions, lack of Randomised Control Trials (RCT) and cost-effectiveness data in the frail elderly, loss of autonomy, value judgements and ageism in health care and the need for an adult vaccination register. Workshop recommendations included recognising the right of elderly people to prevention, the need for promotion in the community and amongst healthcare workers of the high burden of vaccine preventable diseases and the need to achieve high levels of vaccination coverage, in older adults and in health workers involved in their care. Research into new vaccine strategies for older adults which address poor coverage, provider attitudes and immunosenescence is a priority. A well designed national register for tracking vaccinations in older adults is a vital and basic requirement for a successful adult immunisation program. Eliminating financial barriers, by addressing inequities in the mechanisms for funding and subsidising vaccines for the older adults compared to those for children, is important to improve equity of access and vaccination coverage. Vaccination coverage rates should be included in quality indicators of care in residential aged care for older adults. Vaccination is key to healthy ageing, and there is a need to focus on reducing the immunisation gap between adults and children.

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## 1. Introduction

The proportion of adults that are over the age of 60 in Australia is expected to increase from the current 14% to 25% in 2056. This has implications for the future workforce age distribution and the quality of life of the elderly. The definition of quality of life for the older adult is derived from the World Health Organization's definition of health as a state of complete physical, mental and social wellbeing [1], with the emphasis on physical health and functional ability [2].

There are more people aged 85 years and older in aged care facilities now [3] with the average length of stay in an aged care facility being 2.8 years, an 11% increase over the last decade. Therefore the wellbeing of people in aged care facilities is becoming an increasingly important issue [3,4].

In 2010, infectious diseases were leading contributors to the burden of disease in people aged 60 years and older [5]. Influenza, pneumococcus and varicella zoster are vaccine preventable diseases but remain a significant cause of morbidity and mortality among older adult population [4]. Older adults are at higher risk of contracting many vaccine preventable diseases, and do not respond well to treatment. They are therefore at higher risk of suffering serious complications, disability and death from those diseases.

This report describes the presentations and discussions during the panel session on “*How good is good enough for the elderly?*” a title which reflects the lower immunogenicity of vaccines in older adults due to immunosenescence, negative provider attitudes to elderly vaccination, and the lower uptake of vaccines in this age group. The workshop was attended by Australian health service providers, stakeholders in immunisation, ageing, primary care, researchers, government and non-government organisations, community representatives, and advocacy groups. The aims of the workshop were to: provide an update on the latest evidence around immunisation for the elderly; address barriers for prevention of infection in the elderly; and identify immunisation needs of these groups and provide recommendations to inform policy and improve disease prevention in older Australians.

## 2. Impact of vaccine preventable diseases on quality of life

Maintaining function is a key ingredient to enablement, quality of life and the prevention of the deleterious effects of immobility and inactivity for older adults [6]. Preventable illnesses such as, shingles, pneumococcal disease, influenza and pertussis and their sequelae can result in death or reduced activity and function, which may push people over a threshold from living independently into permanent disability.

Participation and social inclusiveness are very important for the overall wellbeing of elderly Australians [7]. Social isolation is another result of acute illness and/or the resulting disability, which can be a risk factor for other diseases and disability.

There are substantial impacts on nursing homes residents, causing morbidity, disability, dependency and reducing quality of life. Once older adults in aged care facilities become disabled they become a much greater burden to staff, which further reduces social connection and quality of life [8]. Other impacts are on the cost of care at emergency departments and inpatient wards, and the possibility of nosocomial transmission of preventable infectious diseases to and from the older adults. Nursing home outbreaks have major health and economic consequences [9]. Disease prevention is a means of promoting positive ageing, preventing suffering and improving quality of life. It is possible the benefit of vaccination in improving quality of life for the elderly is not valued as highly as gaining years of life [3,4].

Another reason for the under-use of vaccines is their lower effectiveness in older adults compared to younger populations. However, there is a heavier burden of many vaccine preventable diseases in this group, compared to younger populations. Therefore there may still be substantial overall public health benefit to be gained from the use of vaccines when the burden of disease is high [10]. In fact, vaccines have higher efficacy compared to many other widely used preventative public health strategies for the older adults such as statins and anti-hypertensive treatments, and it may be more appropriate to compare adult vaccination with other accepted adult preventive strategies than with infant vaccination [11].

In public health, many accepted interventions such as statins and smoking cessation have preventive efficacy of less than 30% [12,13]. Yet health practitioners often dismiss as unworthy vaccines with efficacy less than 80%. Therefore a paradigm shift is required to view vaccines in the elderly in terms of burden of disease and efficacy, not efficacy alone.

### 2.1. Shingles

Shingles has a large impact on the quality of life of older adults, much of which is not captured in standard cost effective analysis of vaccines [14].

At least 10–20% of the older adults who develop shingles will develop post herpetic neuralgia (PHN). The mean duration of PHN is 3.3 years [15]. A nationwide survey of the impact of shingles on quality of life of seniors found that their ability to work was adversely affected in 32% of case [7], and participation in social and community activities was impacted in around half of cases. Most shingles patients who report with post herpetic neuralgia (PHN) require substantial assistance from family members.

Vaccination is the only intervention that has proven to be effective in prevention of shingles [15,16]. A single dose of zoster vaccine is recommended for adults 50 years of age and older who have not received a dose of zoster vaccine. A study involving participants aged >60 years showed an overall reduction in the population incidence of herpes zoster of 51.3% and the incidence of PHN by 66.5% [16]. (Note: On 9 May 2015 the Australian Government announced funding for a single dose of zoster vaccine for those aged 70–79 years [17].)

### 2.2. Pneumococcal disease

The effectiveness of pneumococcal vaccine is particularly important in nursing home residents, the majority of whom are frail older adults and have co-morbidities. There is scarce research on the effectiveness of pneumococcal vaccines in nursing homes. A study in Hong Kong [18], showed effectiveness of 40% for pneumococcal vaccines among older adults in nursing homes. Other studies [19] large randomised controlled trial (CAPiTA) examined the efficacy of PCV13 in preventing invasive pneumococcal disease the population 65 years of age and older found a vaccine efficacy of 75% against invasive disease and 48.5% against pneumonia, although this was not in nursing home residents [20]. The 13-valent conjugate vaccine [20] is currently licensed for use in people aged  $\geq 65$  years and it is funded under the NIP.

### 2.3. Influenza

The majority of deaths caused by influenza occur in people aged 65 years and over. The frail older adults suffering from chronic conditions and residents of aged care facilities are at higher risk of outbreaks. A meta-analysis of 35 test-negative case-control studies found that influenza vaccination of the older adults was associated with a significant reduction in the risk of hospitalization for pneu-

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