

# Life Course Vaccination

## Impact of Life Course Vaccination on an Ageing Population

### Executive Summary

Childhood immunisation is a standard and recognised critical element of preventive care around the world. Despite strong evidence for the efficacy of immunization against influenza, pneumococcal disease and other vaccine preventable diseases (VPD), there is a gap between recommendations for vaccination among older persons and actual vaccination rates in Europe. Older Europeans are not well vaccinated and therefore not well protected against these VPD. Identifying and developing strategies for overcoming barriers to vaccination is therefore an important health policy goal for Europe.

In this brief, we summarize the evidence about policies and practices that promote the use of vaccination from all over the world and identify actions that policy makers should take to improve rates of vaccination and promote healthy ageing. We articulate four broad policy goals and identify specific actions required to realize them. The four policy goals are:

- Promote life course vaccination to promote healthy ageing by limiting the burden of illness linked to vaccine-preventable infectious disease;
- Improve the vaccination rate among health care professionals (HCP) and empower their critical role as vaccination providers;
- Expand opportunities for patients to receive vaccination;
- Develop patient knowledge and improve attitudes and beliefs;

Each of these goals, along with a list of recommended policy actions, are summarised in one table available at the end of this Policy Brief. The potential economic, social, cultural and health benefits of these changes are enormous, but to translate ‘what we know’ into effective policy, policy makers must use evidence from the literature, including the evidence we summarise here, to define precise and realistic objectives regarding expected vaccination coverage. It is also crucial to develop implementation plans that include providing appropriate information to patients and to HCP in charge of vaccination; monitor vaccination coverage with appropriate tools and assess the results; and continuously re-adapt policies and programmes based on new evidence.

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## Forward

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Europe is in the middle of unprecedented demographic change. The right decisions by bold, far-sighted leaders will help their societies to lead longer, healthier, more productive independent lives that will benefit society and the European economy. Among these should be policies and practices that encourage the use of vaccination throughout the life-course. Vaccines provide cost-effective protection against a host of diseases, including pneumonia, influenza, pertussis – and the negative economic, medical and social consequences of these diseases. They provide this protection, not only to the individuals who receive the vaccination, but to their communities as well. Increasing the use of vaccination will keep people healthy and empower them to be independently active for longer.

Despite the overwhelming evidence in favour of life-course vaccination, rates of vaccination among adults remain low in most European countries. The failure of health systems to address this problem is a subtle form of ageism that should not be tolerated. Fortunately, this brief offers policy makers a concise review of the scientific evidence and identifies concrete, easy to implement changes that will increase the use of vaccination and improve public health.

## Introduction

Immunization is a standard element in preventative public health and health care regimes worldwide. Vaccination has controlled 12 major diseases, at least in parts of the world.<sup>1</sup> In the case of smallpox, the dream of eradication has been fulfilled. The impact of vaccination on the health of the world's population is hard to exaggerate. With the exception of safe water, no other modality, not even antibiotics, has had such a major effect on mortality reduction and population growth.<sup>1</sup>

Despite the widely held perception that vaccine-preventable diseases are largely an issue for early life, the promotion of vaccination among older persons should be part of a comprehensive strategy to promote healthy ageing,<sup>2</sup> a priority for the European Commission and policy makers throughout Europe.<sup>3</sup> Early-life exposures to adverse health and inadequate health care have long been recognized as influential in population health beyond childhood. The extension of this insight to older age groups is more recent and is of mounting importance as population ageing shapes societies across the world.<sup>4</sup> Although there is a broad recognition of the need for prevention to promote health ageing,<sup>5</sup> this has not always resulted in support for a programme of life long vaccination. With the exception of the flu vaccine, many adults believe that vaccination is relevant only for children and are not regularly checking their vaccination status; consequently the vaccination coverage remain low. But vaccines can help to protect adults against a host of infectious, and sometimes deadly, diseases. For example, Fingar and colleagues have found that in the U.S. far more adults die from vaccine preventable diseases each year than children.<sup>6</sup> These diseases include, but are not limited to, influenza, pneumococcal disease, tetanus, diphtheria, pertussis (whooping cough), polio, herpes zoster (shingles), hepatitis A and B, and some tropical diseases.

Identifying and developing strategies for overcoming barriers to vaccination is therefore an important health policy goal for Europe. There is a large body of evidence from countries around the world about policies and practices that promote the use of vaccination. In this brief, we summarize the evidence and identify actions that policy makers can take to improve rates of vaccination and promote healthy ageing. We articulate four broad policy goals, identify lessons from the existing literature, and recommend concrete steps that policy makers should take to enhance the preventable infectious disease vaccine coverage across Europe.

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<sup>1</sup> The 12 major diseases are: smallpox, diphtheria, tetanus, yellow fever, pertussis, Haemophilus influenzae type b disease, poliomyelitis, measles, mumps, rubella, typhoid and rabies

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# Life Course Vaccination

## Impact of Life Course Vaccination on an Ageing Population

By *Michael K. GUSMANO and Jean-Pierre MICHEL*

### Policy goal 1: Promote Life Course Vaccination to Promote Healthy Ageing by limiting the burden of illness linked to vaccine-preventable infectious disease

#### What do we know?

#### **A life course vaccine programme contributes to healthy ageing by limiting the burden of illness linked to vaccine-preventable infectious disease:**

Although countries in Europe have vaccination schedules that recommend annual influenza vaccination among persons 65 years and over, in other age groups most recommendations are restricted to persons with medical underlying conditions which, because of low vaccination uptake, put them at risk of severe influenza disease or complications. This is a missed opportunity to promote healthy ageing because the 50-64 year of age group is characterized by a sizable prevalence of 'high risk factors,' which increase the probability of morbidity or mortality due to vaccine preventable diseases (29% of this population had at least 1 risk factor in U.S.).<sup>7</sup>

Experience with other vaccinations has shown that the most effective way to ensure high vaccination coverage rates is to implement "age-based" policies rather than "risk-based" approaches. In addition, segmenting the adults and older persons (50+) population with multiple subcategories does not make real sense when dealing with the series of diseases which can be prevented by vaccination throughout our lives.<sup>9</sup>

**A life course vaccine programme helps to establish protection against VPD before the onset of 'immunosenescence.'** Because the immune function declines with age, leading to more severe and more

frequent infections—the phenomenon known as "immunosenescence"—a life course vaccine programme should start in middle age, before an age-related immunological decline has begun.<sup>8</sup> Therefore, establishing vaccination policies for adults and older persons as a continuum starting at age 50 not only makes sense from a public health perspective, but also from an economic perspective, because they could help reduce the need for costly treatments.<sup>10</sup>

#### What should we do?

- Adopt the vaccination schedule designed to promote "a lifetime programme of vaccination" endorsed by the European Union of Geriatric Medicine Society (EUGMS) and the International Association of Geriatrics and Gerontology – European Region (IAGG-ER).

### Policy goal 2: Improve the vaccination rate among health care professionals (HCP) and empower their critical role as vaccination providers

#### What do we know?

#### **Health care professional recommendation is crucial:**

Recommendations from health care professionals have a profound influence on adult vaccination rates by advising the patients and reassuring/convince those whose attitudes and beliefs can constitute vaccine barriers.<sup>11</sup>

Studies of vaccination among children and adults demonstrate clearly the importance of recommendation from a health care professional.<sup>12</sup> The largest cause of missed opportunities is the failure of physicians to offer vaccination.<sup>13</sup>

**Physician knowledge of vaccines is inadequate:** GPs and specialists who take care of adults and older persons are neither familiar with vaccines and vaccination nor of their key roles and responsibilities in implementing vaccination policies. In most European countries, medical school curricula do not include education about vaccines and vaccination.<sup>14</sup> As a result, physician knowledge of vaccines is often inadequate. This is a problem because physicians could address the often inaccurate vaccine safety-concerns of their patients.

### What should we do?

- Provide education and training to improve the understanding and use of vaccines among health care professionals and include verification of vaccination status routine check at each care visit.
- Establish and monitor targets to improve vaccination rates among health care professionals.
- Establish targets for vaccination coverage as annual health care professional objectives
- Provide physicians with incentives to vaccinate.

## Policy goal 3: Expand Opportunities for Patients to Receive Vaccination (Access to Vaccines)

### What do we know?

**Well care visits improve the use of preventive services, including vaccination:** while children meet doctors during well care visit, (routine component of paediatric care), older adults are more likely to interact with the health care system only when they are sick, which let them few opportunities to be offered vaccination. Health care professionals are more likely to discuss vaccination with their patients during well-care visits than during sick visits.<sup>15</sup> Studies in Europe suggest that “Practices that allowed more time for acute care visits and used more immunization promotion activities were found to have higher influenza and pneumococcal vaccination rates among adults >65 years of age.”<sup>16</sup>

**Reimbursement of vaccines has a major impact on the willingness to be vaccinated:** The availability of free or partially reimbursed vaccines to the patient can have an important effect on their use. In Australia, publicly funded pneumococcal vaccine increased the rate of uptake from 39% to 73% between 2005 and 2006.<sup>17</sup> Similarly, England combined free vaccination, incentive to physicians to vaccinate, and a national advertising campaign

to increase influenza vaccination from 27% in 1990-91 to 69 percent by 2002-3.

**Information technology can encourage physician-patient conversation or knowledge about health prevention:** Electronic medical records with computerized prompts increase the probability that health care professionals will easily identify target populations, check their current vaccination status and raise the issue of vaccination with their patients.<sup>18</sup> Reminder systems and mass mailings that encourage vaccination have been found to be cost effective strategies for increasing vaccination rates.<sup>19</sup>

**Adult vaccination can be provided in a host of settings and occasions:** Several researchers suggest linking vaccination to hospital visits. For example, patients discharged from hospital for pulmonary disease could be offered immediate injection of pneumococcal vaccine and, in the autumn, of influenza vaccine.<sup>20</sup> Another possibility is to offer pneumococcal vaccination a routine part of hospital inpatient care for all at-risk patients. This would not only overcome the problem of physician failure to recommend vaccination, it would target older persons at “highest risk of pneumococcal morbidity and mortality.”<sup>21</sup> The latter approach has been implemented and found to be highly effective at raising vaccination rates, particularly when they were implemented in the form of standing orders authorizing nurses or pharmacists to administer vaccinations without an individual physician order for each patient.<sup>22</sup> Similarly, offering vaccinations in “travel clinics” is an effective way to increase vaccination rates because, at these clinics, patients have access to knowledgeable health care professionals who can address their questions about vaccines.

### What should we do?

- Recommend and reimburse routine well-care visits for 50+ persons.
- Reduce or eliminate the cost of vaccines for patients.
- Reimburse and remunerate health care professionals for providing vaccines to their patients.
- Encourage the dissemination and use of electronic medical records with computerized prompts.
- Check the vaccination status of patients at every contact they have with the health care system and, when appropriate, propose vaccination to them. For example, patients should be offered recommended vaccinations at the time of discharge following a hospital stay.



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## Policy goal 4: Develop Patient Knowledge and Improve Attitudes and Beliefs

### What do we know?

**There is a need to overcome reluctance to vaccination:** Some people believe that vaccines will either give them the diseases they are designed to prevent or will result in serious side effects. This often inhibits the use of vaccine. Aside from uncommon instances, the risk of serious adverse effects from vaccination is minimal. For instance, despite the fact that flu vaccines are made from killed viruses and consequently cannot transmit this disease, one study found that more than a quarter of patients believed that the influenza vaccine could infect them with the disease.<sup>23</sup>

**It is important to convey the benefits of being vaccinated to patients:** Patients may also avoid vaccines because they do not believe they are at risk for contracting the disease and therefore do not think they need vaccine protection.<sup>24</sup> Not only do vaccines directly protect vaccinees throughout their lives, but they can also protect the unvaccinated. For example, vaccination of members of a household with a young infant, who may be responsible for up to 83% of transmission of pertussis to infants not yet fully vaccinated, could provide important protection for this vulnerable population.<sup>25</sup> Parents may be willing to be vaccinated if they believe it will protect indirectly their children or grandchildren who may be at risk. Similarly, since most family caregivers for older persons are women between the age of 45 and 64, increasing vaccination rates can be achieved in this population by emphasizing the health benefits, not only for themselves, but also indirectly for those they are caring for.

**There is a need to improve patient health literacy:** People with low health literacy are less likely to be vaccinated. Indeed, health literacy is even more important than the level of education for predicting the willingness to use vaccinations and other preventive services.<sup>26</sup>

**Policies should empower patients to monitor their vaccination records:** Improving patient knowledge of their vaccination status and eligibility to vaccination helps to encourage the use of necessary vaccines and to “prevent needless revaccination if there is a change in a health care provider or during a health emergency.”<sup>27</sup>

### What should we do?

- Develop and implement vaccine advocacy programmes to support vaccination policies in adult and older persons
- Conduct a health literacy campaign to make adults more aware of the benefits of vaccination – not only to themselves but also to others.
- Distribute and encourage the use of a permanent immunization record.

## Conclusions

This policy brief is a call for new European vaccination policies based on evidence from the scientific literature. Rates of vaccination among adults in Europe are far below recommended levels. Although there is a need for additional research, we have identified several policy changes that are likely to increase the use of vaccination. These include:

- Adopting vaccine schedules that encourage vaccination throughout the life course;
- Educating HCW about the value of vaccines;
- Providing HCW with incentives to vaccinate their patients;
- Monitoring and publishing vaccination rates;
- Reducing the cost of vaccination for patients;
- Reimbursing and encouraging the use of well care visits for adults, which provide sufficient time to discuss vaccination and other preventive measures;
- Using technology to prompt conversations about vaccination during office visits;
- Making vaccines available during other interactions with the health care system, such as hospital stays; improving health literacy; and
- Encouraging the use of permanent immunization records.

In addition to adopting these policy changes, it is also crucial to develop implementation plans that include efforts to monitor vaccination coverage with appropriate tools, assess the results of these policy changes; and continuously re-adapt policies and programmes based on new evidence. Policy makers in Europe can help their citizens enjoy the tremendous economic, social, cultural, and health benefits of vaccination by acting on the recommendations we provide in this brief.

## Appendix: Summary Table

WHAT WE KNOW	WHAT WE SHOULD DO
A life course vaccine programme contributes to healthy ageing	Adopt the vaccination schedule designed to promote “a lifetime programme of vaccination” endorsed by the European Union of Geriatric Medicine Society (EUGMS) and the International Association of Geriatrics and Gerontology – European Region (IAGG-ER).
A life course vaccine programme helps to anticipate age-related immunological decline.	
Health care professional recommendation is crucial.	<ul style="list-style-type: none"> <li>• Provide physicians with incentives to vaccinate.</li> <li>• Monitor the vaccination rates of health care professionals</li> <li>• Monitor the impact of increased vaccination rates on population health status</li> </ul>
The failure of health care professionals to be vaccinated against infectious disease may put their patients at risk.	Establish and monitor targets to improve vaccination rates among health care professionals.
Physician knowledge of vaccines is inadequate.	<ul style="list-style-type: none"> <li>• Provide education and training to improve the understanding and use of vaccines among health care professionals;</li> <li>• Involve physicians' professional bodies in the decision-making process for vaccination programmes and in explaining physicians' responsibilities in the implementation of vaccination programmes.</li> </ul>
Well care visits promote the use of preventive services, including vaccination.	<ul style="list-style-type: none"> <li>• Recommend and reimburse routine well-care visits for 50+ persons.</li> <li>• Reimburse health care professional for providing vaccines to their patients.</li> </ul>
The cost of vaccines is a major barrier for the patient.	<ul style="list-style-type: none"> <li>• Reduce or eliminate the cost of vaccines for patients.</li> </ul>
Information technology can encourage physician-patient conversation/knowledge about health prevention.	Encourage the dissemination and use of electronic medical records with computerized prompts.
Adult vaccination can be provided in a host of settings.	Check the vaccination status of patients and, when appropriate, propose vaccination when patients are in contact with the health system.
There is a need to overcome reluctance to accept vaccination.	Develop and implement vaccine advocacy programmes to support vaccination policies in adult and older persons
It is important to convey the benefits of being vaccinated to patients.	
There is a need to improve patient health literacy.	Conduct a health literacy campaign to make adults more aware of the benefits of vaccination – not only to themselves but to others.
Policies should empower patients to monitor their vaccination records.	Distribute and encourage the use of a permanent immunization record.

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### The Alliance for Health & the Future

was organised in 2003 to combine research, education, and policy efforts to promote good health and productivity throughout the life course. The Alliance operates as a division of the International Longevity Center-USA. Its aim is to advance knowledge and provide training, skills, and systems to help individuals and society realise a healthy future.

Alliance publications are available online at [www.healthandfuture.org](http://www.healthandfuture.org).

### The International Longevity Center-USA (ILC-USA)

is a not-for-profit, nonpartisan research, education, and policy organisation whose mission is to help individuals and societies address longevity and population ageing in positive and productive ways, and to highlight older people's productivity and contributions to their families and society as a whole.

The organisation is part of a multinational research and education consortium, which includes centers in the United States, Japan, Great Britain, France, the Dominican Republic, India, South Africa, Argentina, the Netherlands, and Israel. These centers work both autonomously and collaboratively to study how greater life expectancy and increased proportions of older people impact nations around the world.

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